

# **BASIC TACTICS (TOW), PART II**

Subcourse Number IN0542

EDITION B

United States Army Infantry School  
Fort Benning, Georgia 31905-5593

Five Credit Hours

Edition Date: September 1994

## **SUBCOURSE OVERVIEW**

This subcourse is designed to teach you to supervise the preparation of a mounted M220 launcher firing position; to supervise the construction and camouflage of a TOW dismounted fighting position; to plan and control TOW section fires; to inspect an anti-armor range card; to determine the method of movement (TOW); to recommend the employment of TOWs; to consolidate and reorganize a TOW section following enemy contact; and to recover a tracked vehicle using field expedients.

There are no prerequisites for this subcourse.

This subcourse reflects the doctrine which was current at the time it was prepared. In your own work situation, always refer to the latest publications.

The words "he," "him", "his," and "men," when used in this publication, represent both the masculine and feminine genders unless otherwise stated.

## **TERMINAL LEARNING OBJECTIVE**

- TASK:** You will be able to supervise the preparation of a mounted M220 launcher firing position; to supervise the construction and camouflage of a TOW dismounted fighting position; to plan and control TOW section fires; to inspect an anti-armor range card; to determine the method of movement (TOW); to recommend the employment of TOWs; to consolidate and reorganize a TOW section following enemy contact; and to recover a tracked vehicle using field expedients.
- CONDITIONS:** You will have access to information from [FM 7-91](#) and STP 7-11H24-SM.
- STANDARDS:** Supervising the preparation of a mounted M220 launcher firing position; supervising the construction and camouflage of a TOW dismounted fighting position; planning and controlling TOW section fires; inspecting an anti-armor range card; determining the method of movement (TOW); recommending the employment of TOWs; consolidating and reorganizing a TOW section following enemy

contact; and recovering a tracked vehicle using field expedients will be in accordance with [FM 7-91](#) and STP 7-11H24-SM.

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## LESSON ONE

# PREPARE TO EMPLOY THE TOW LAUNCHER SYSTEM

### MOS Manual Tasks:

071-056-0025 - Supervise the preparation of a mounted M220 launcher firing position

071-317-2603 - Supervise the construction and camouflage of a TOW dismounted fighting position

071-316-2601 - Plan and control TOW section fires

## OVERVIEW

### TASK DESCRIPTION:

In this lesson, you will learn to supervise the preparation of a mounted M220 launcher firing position; to supervise the construction and camouflage of a TOW dismounted fighting position; to plan and control TOW section fires; and to inspect an anti-armor range card.

### LEARNING OBJECTIVE:

- TASKS:** Identify the procedures for preparing to employ the Launcher System.
- CONDITIONS:** You will be given information from [FM 7-91](#) and STP 7-11H24-SM.
- STANDARDS:** Preparing to employ the TOW Launcher System will be in accordance with [FM 7-91](#) and STP 7-11H24-SM.
- REFERENCES:** The material contained in this lesson was derived from the following publications; [FM 7-91](#) and STP 7-11H24-SM.

## INTRODUCTION

Before the TOW can be employed in the field, it is necessary to prepare a mounted M220 launcher system firing position or to construct and camouflage a TOW dismounted fighting position; and to prepare an anti-armor range card. Although you will not actually perform these activities, you are responsible for supervising and inspecting them. Therefore, you need to know how each is to be performed. In addition, you must be able to plan and control TOW section fires. Lesson One of this subcourse provides instructions in each of these areas.

## **PART A - SUPERVISE THE PREPARATION OF A MOUNTED M220 LAUNCHER FIRING POSITION**

### **1. Preparation.**

The preparation of a firing position begins upon the occupation of a firing position and continues until the position is vacated. Preparation includes the following:

- The initial digging in.
- Range card preparation.
- Camouflaging.

### **2. Set Up and Dig In.**

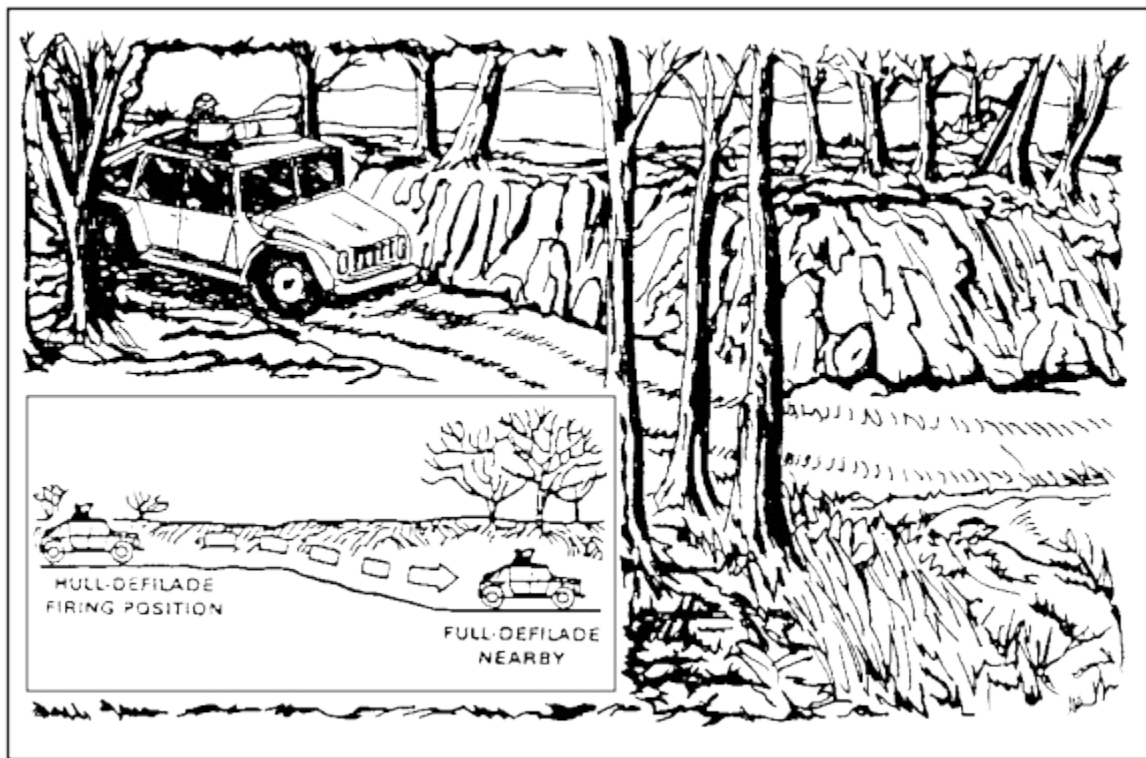
After you occupy the position and establish security, the first step in the preparation of the position is setting up and sighting the weapon system and preparing a range card. During the preparation of the position, your squad must be prepared to fight. Keeping the sector of responsibility under constant observation allows the squad to react quickly if the enemy appears before the position is completed.

### **3. Types of Anti-armor Positions.**

Two types of Anti-armor firing positions (mounted and dismounted) are discussed in this lesson.

a. Mounted Position. The mounted firing position is characterized by a hull-down posture in which the TOW vehicle is behind either natural or constructed cover with only the TOW launcher exposed. Natural cover is best and is the easiest cover to prepare and camouflage, as shown in [Figure 1-1](#). When natural cover is not available, hull-down positions can be excavated with engineer assistance, as shown in [Figure 1-2](#). When hide positions are used, the primary firing positions should also be hull-down (as shown in [Figure 1-3](#)). If enemy fire is accurate, hull-down positions should be selected or constructed so that the TOW vehicle can move quickly to complete defilade. Routes into and out of hull-down positions should also have complete defilade.

b. Dismounted Position. The dismounted firing position is discussed in [Part B of Lesson One](#) of this subcourse.



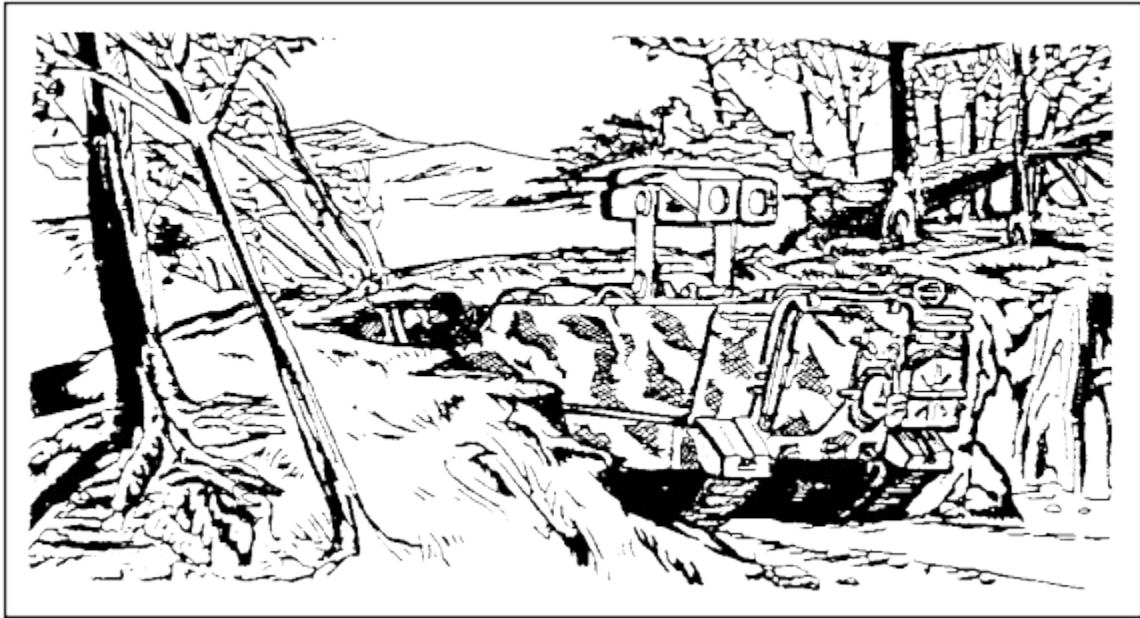
**Figure 1-1. Natural Hull-Down Position.**

4. Camouflage and Conceal the Firing Position.

Once the position is dug, you must camouflage it.

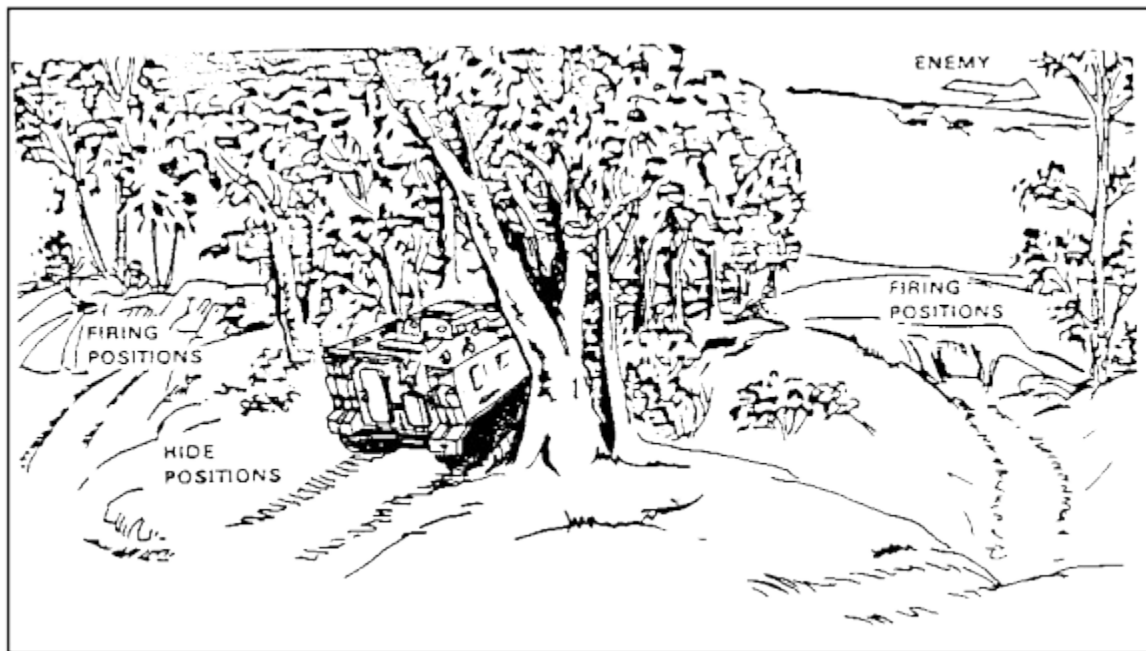
Use any of the following natural materials to camouflage the position:

- Sod.
- Leaves.
- Brush.
- Grass.
- Overturned dirt.
- Any other natural material.

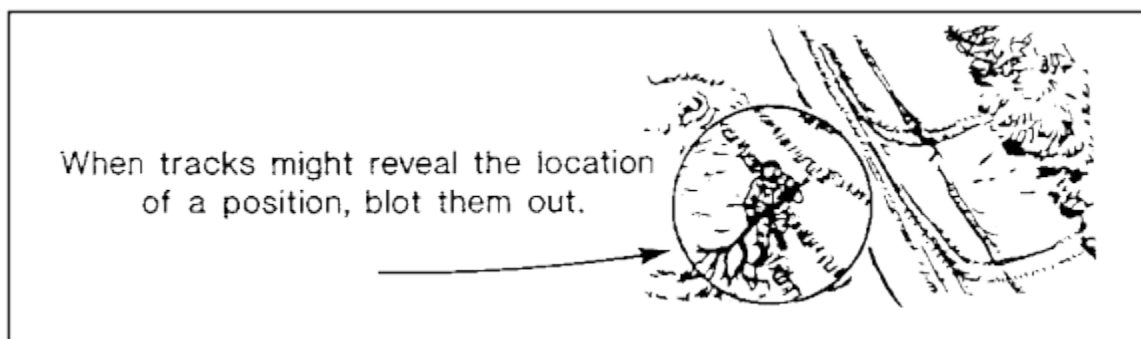


**Figure 1-2. Excavated Hull-Down Position.**

- a. Man-Made Materials. Camouflage nets or other man-made materials may be used, but they are most effective when you use them along with natural camouflage. The position should look as natural as possible.
- b. Procedures to Camouflage the Position. Use the following guidelines to camouflage and conceal the firing position.
  - (1) Remove Loose Materials. Remove loose materials from the TOW's backblast area. Wet down the area to reduce the TOW's signature.
  - (2) Approach from the Rear. Approach the position only from the rear. Erase or cover any footprints around or leading to or from the position.
  - (3) Erase or Cover Tracks. Upon moving into a position, keep in mind that the best camouflaged position may still be detected if tracks leading to it are not erased or covered, as shown in [Figure 1-4](#).



**Figure 1-3. Hide Position to Hull-Down Position.**



**Figure 1-4. Erasing Tracks.**

(4) Use the Same Route for All Vehicles. Ensure that all vehicles travel to a position over the same route. This prevents the enemy from knowing how many vehicles are present.

(5) Follow Existing Road and Terrain Features. If at all possible, ensure that the route taken to the position follows existing paths, roads, fences, and natural lines in the terrain.

(6) Exposed Routes. Do not permit exposed routes to end at your position.

(7) Keep Traffic to a Minimum. Keep traffic in and out of the position to a minimum by allowing only essential movements.

## 5. Guidelines for Employing Natural Camouflage.

Use the following guidelines to employ natural camouflage.

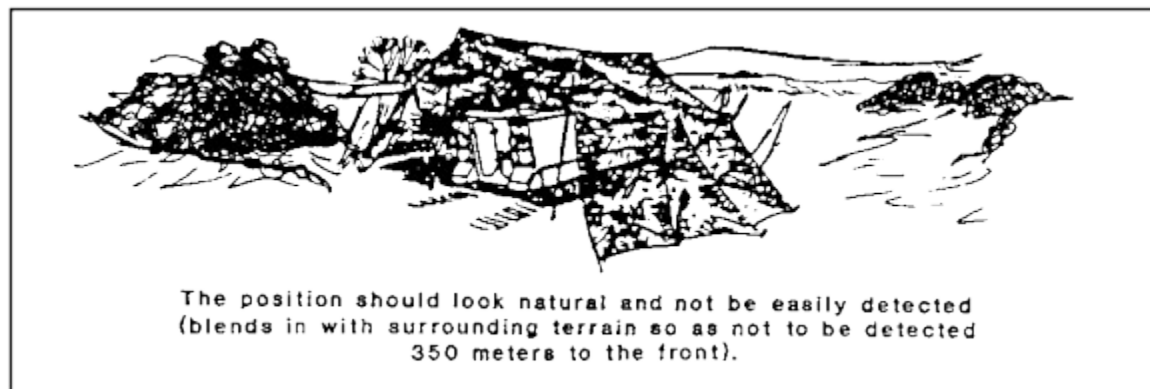
a. Change Natural Vegetation. Ensure that natural vegetation used for camouflage is changed often so that it remains fresh. Wilted vegetation will make your position easy to find.

- b. Obtain Camouflage Vegetation from Another Area. Ensure that vegetation used as camouflage is obtained from a different area than your position.
- c. Avoid Over-camouflage. Never over-camouflage your position. Ensure that the camouflage matches the environment in which your position is located.
- d. Do Not Let Camouflage Interfere with Weapon Fire. Do not allow the camouflage of your position to interfere with the firing of your weapon.

## 6. Employ Camouflage Nets.

Use the following guidelines to employ camouflage nets.

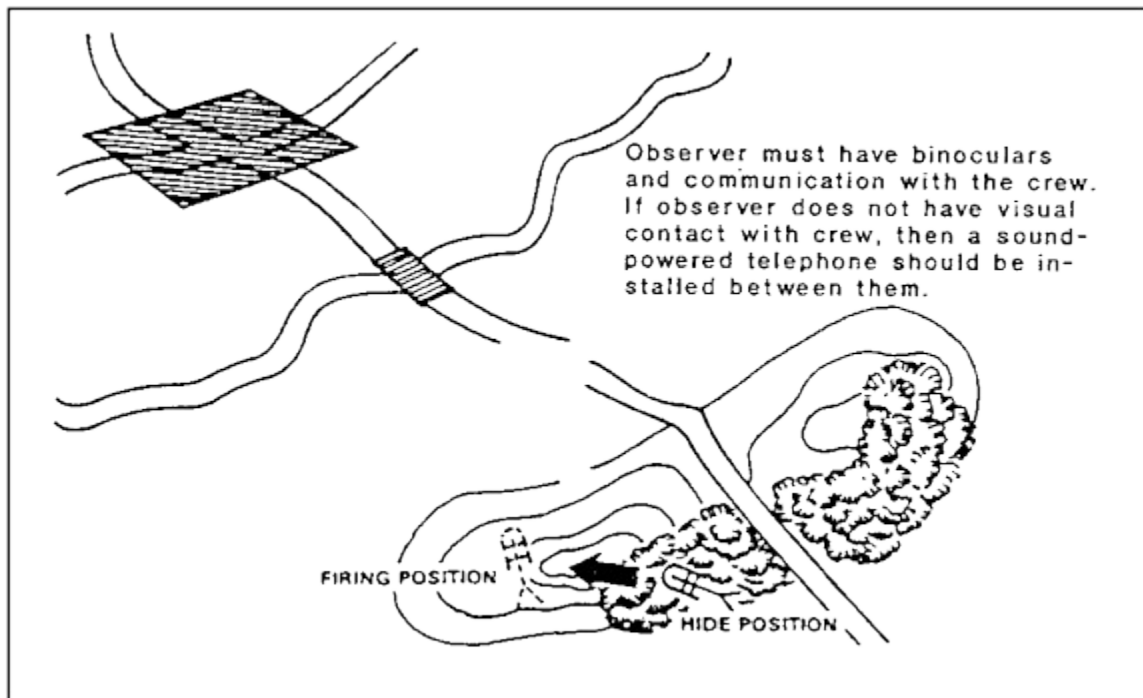
- a. Blend Nets with Surrounding Terrain and Vegetation. When using camouflage nets, ensure that the nets blend with the surrounding terrain or vegetation.
- b. Do Not Let Nets Interfere with Weapon Fire. As with natural materials, ensure that nets are emplaced so that they will not interfere with firing from the position. Use the following procedures to emplace nets:
  - When using nets with vehicles, ensure that the nets are raised above the top of the vehicle.
  - To keep the nets above the vehicles, use poles or small tree branches for support.
  - When a camouflage net is used with a hull-defilade position, ensure that the vehicle outline is broken up and that the net drapes over the vehicle and blends with the surrounding terrain, as shown in [Figure 1-5](#).



**Figure 1-5. Blending Nets with Surrounding Terrain.**

- In the event that a hull-down position is not available, use a hide position, as shown in [Figure 1-6](#).
- If the terrain is such that neither a hull-down nor a hide position is available, make the best of existing terrain to conceal the TOW.





**Figure 1-6. Hide Position.**

#### 7. Inspect Camouflage.

Use the following procedures to inspect camouflage.

- a. Check the Ground Behind the TOW. Ensure that the ground behind the TOW (about 25 meters) is free of leaves and dirt so that the backblast from the weapon does not leave a signature.
- b. Avoid Evidence of Digging. Do not leave any evidence of digging. Do not leave equipment lying around. Everything must be concealed or camouflaged.
- c. Check the Front of the Position. If possible, move to the front of your position (ground, 35 meters; vehicle, 350 meters) and study your position. Ensure that the position looks natural and blends with its surroundings.

## **PART B - SUPERVISE THE CONSTRUCTION AND CAMOUFLAGE OF A TOW DISMOUNTED FIGHTING POSITION**

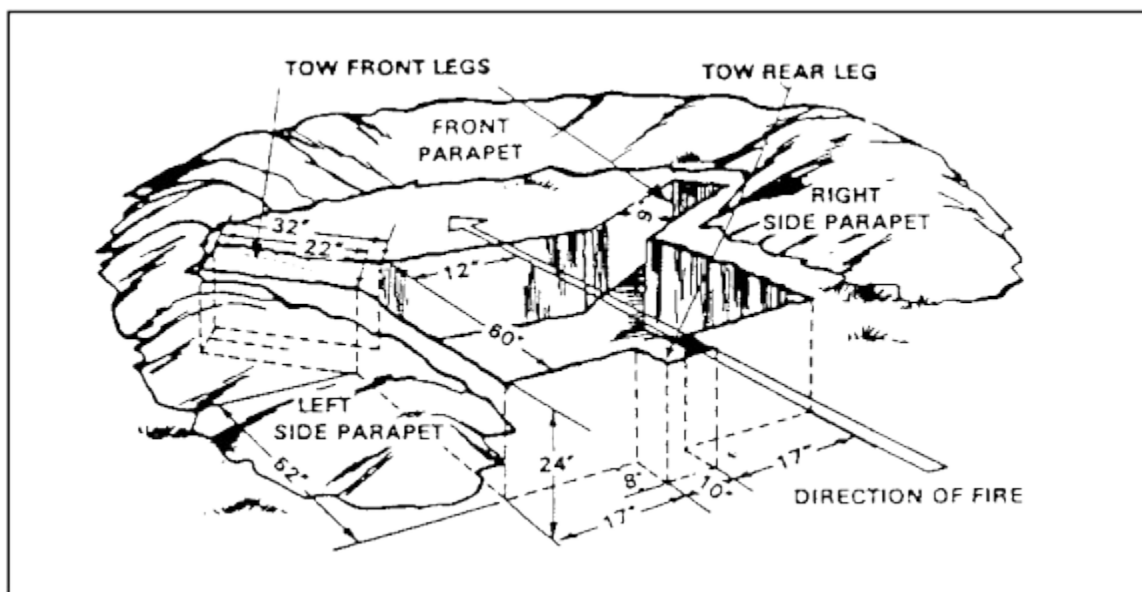
### 1. Dismounted Position.

The dismounted position must protect squads from direct and indirect fires through cover and concealment. The dismounted position is usually dug in with overhead protection, is intended to be retained, and is quite large. Overhead cover must allow the bridge clamp to be raised and the indexing lugs on the encased missile to be inserted into the launch tube indexing slots. As a result, use overhead cover only when it can be properly camouflaged and concealed. Also, position the organic machine gun for self-defense.

When constructing a dismounted position, the squad keeps the TOW system mounted in its vehicle and prepares a range card until the position can support and protect its employment. Only the tripod is used to outline the dismounted position, as shown in [Figure 1-7](#).

Dig the weapon's position first and add overhead protection for the crew and missiles as time allows. Dig a position at least 24 inches deep, as shown in [Figure 1-8](#).

The TOW launcher can easily be detected, especially during daytime. To reduce the possibility of detection, keep the launcher below ground level until it is needed. To accomplish this, release the friction lock on the rear leg and slide the leg back into the notch at the rear of the position. Avoid getting any dirt or debris into the launch tube.

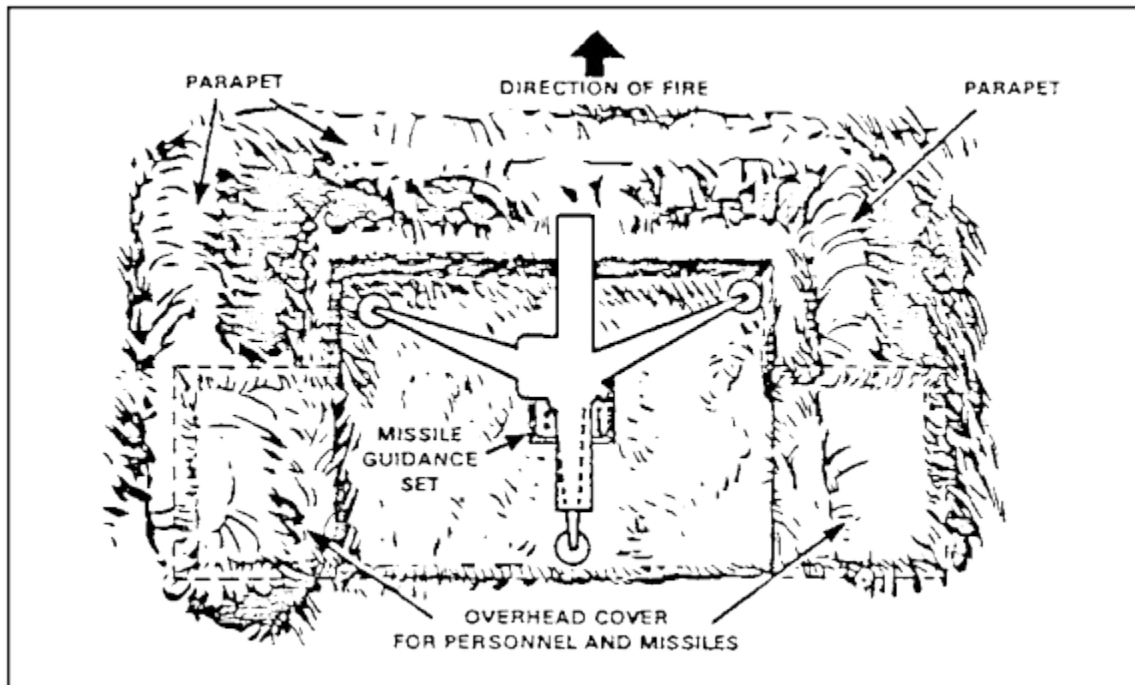


**Figure 1-7. Outline of the Dismounted Position.**

## 2. Construct the Position.

Use the following procedures to construct the dismounted position ([Figure 1-8](#)).

- a. Build a Parapet. Build a parapet to the front and the flanks of the position. To provide protection from small-arms fire and fragments from mortar and artillery rounds, the parapet should be covered by at least 18 inches of dirt. To ensure that missiles do not hit the ground before reaching a target, leave at least nine inches of clearance under the muzzle of the launch tube (that is, between the bottom of the launch tube and the parapet). Do not place dirt or equipment in the backblast area. Scoop out a place between the tripod legs for the missile guidance set (MGS), either to the front or under the tripod, as shown in [Figure 1-8](#). To ensure that missiles do not hit the ground before reaching a target, ensure that there is adequate line-of-sight clearance (at least 30 inches) from 500 to 900 meters in flat terrain and that the position is not more than 24 inches deep.



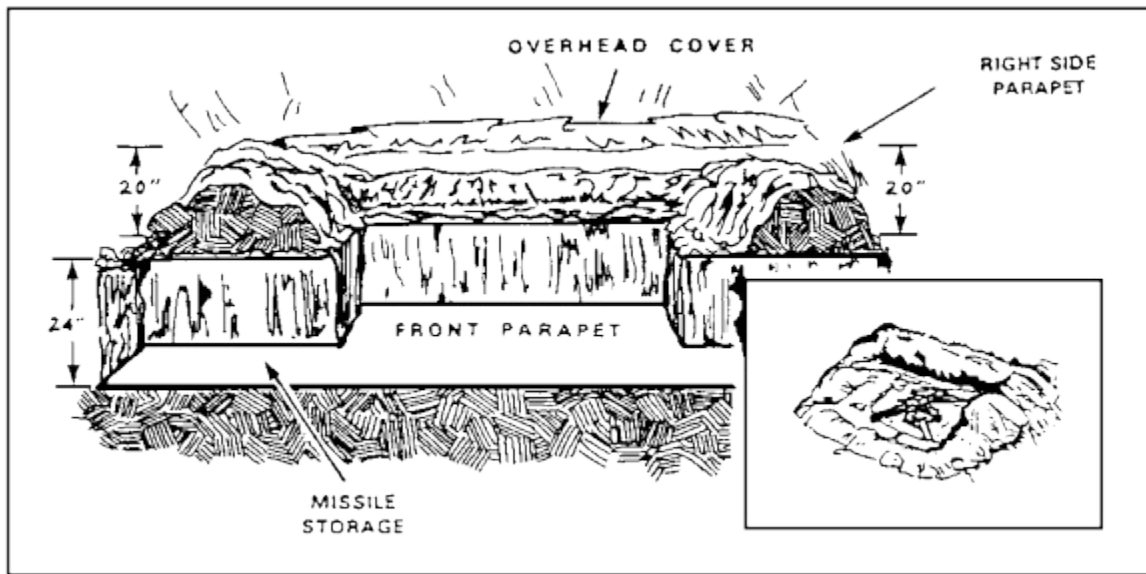
**Figure 1-8. Position of the Missile Guidance Set.**

b. Provide Overhead Protection. Provide overhead protection for squad personnel and missiles by digging squad positions on each side and to the rear of the position, as shown in [Figure 1-9](#). Build the overhead cover at ground level to make the position more difficult to detect. Logs that are four to six inches in diameter, covered by 12 to 14 inches of dirt, provide adequate protection against mortar or artillery fragments.

c. Improve the Position and Keep It Dry. To keep the position dry, lay a layer of packing material (sandbags, for example) or waterproof material (canvas, plastic, or a poncho) over the logs before adding the dirt.

d. Improve the Position. Improve the position by adding overhead cover for the crew and the missiles. Dig to the flank (90 degrees to the primary section of fire). Use the strongest material available for the roof. Put sandbags, plastic, or canvas down before throwing the dirt on the roof to keep the ceiling from leaking.

Place at least 20 inches of dirt on top of the storage/protective area, as shown in [Figure 1-10](#).



**Figure 1-9. Overhead Cover.**

e. Disconnect the Missile Guidance Set. Disconnect the missile guidance set and position it in the place made for it. Then place the launcher into the position. Reconnect the missile guidance set and check the boresight.

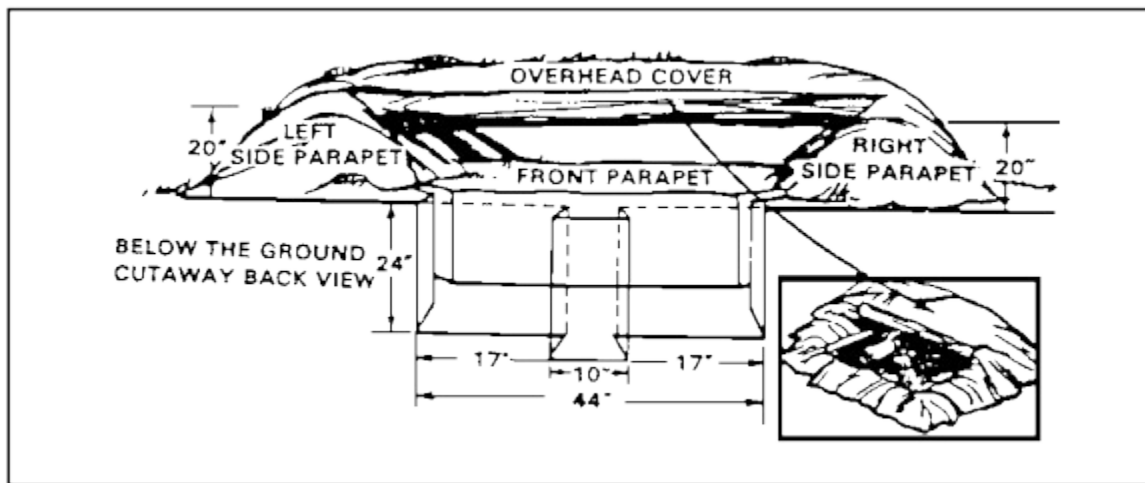
### 3. Camouflage the Position.

Use the following procedures to camouflage the position.

a. Place Sod on the Parapet. Place sod from the position on the parapet so that it looks natural and has a good chance of growing.

b. Cover Fresh Dirt. Cover all fresh dirt with leaves or brush so that it blends with the ground around the position.

c. Use Vegetation If Required. If additional vegetation must be used to break up the outline of the parapet, get it from far to the rear of the position. It should look like the vegetation around the position and, if possible, should have intact roots. Do not use so much vegetation that the position has more than the surrounding area. Camouflage the holes or cuts from which the vegetation was removed.



**Figure 1-10. Storage/Protective Area.**

- d. Camouflage the Position. If the position is covered, camouflage it as you did the parapet. If it is not covered, camouflage the position using camouflage nets or available brush, branches, etc., so that it is not visible from above.
- e. Replace Foliage. Replace foliage if it withers or begins to change color. Attempt to get sod and vegetation that is used as camouflage to grow so that the position will improve as time passes. Remember that the position can always be improved.
- f. Approach the Position from the Rear. Approach the position from the rear, ensuring that you leave no trace of your passing. Especially, cover all footprints around and leading into and out of the position.
- g. Avoid Littering. Do not litter the area or make unnecessary noise while constructing or camouflaging the position.
- h. Avoid Disturbing Vegetation. Do not disturb vegetation that is not used in constructing or camouflaging the position. The area around the position should look as natural as possible.

#### 4. Inspect the Camouflage.

You inspect the camouflage using the same procedures as for the mounted TOW, found in paragraph 7 of Part A of Lesson One of this subcourse.

#### 5. Hunter-Killer Position.

To conduct a hit-and-run anti-armor ambush, a small position may be created that is just large enough to conceal the system and the crew until the ambush is executed. These positions use no overhead cover and normally take advantage of existing terrain features such as folds in the ground.

#### 6. Urban Terrain Position.

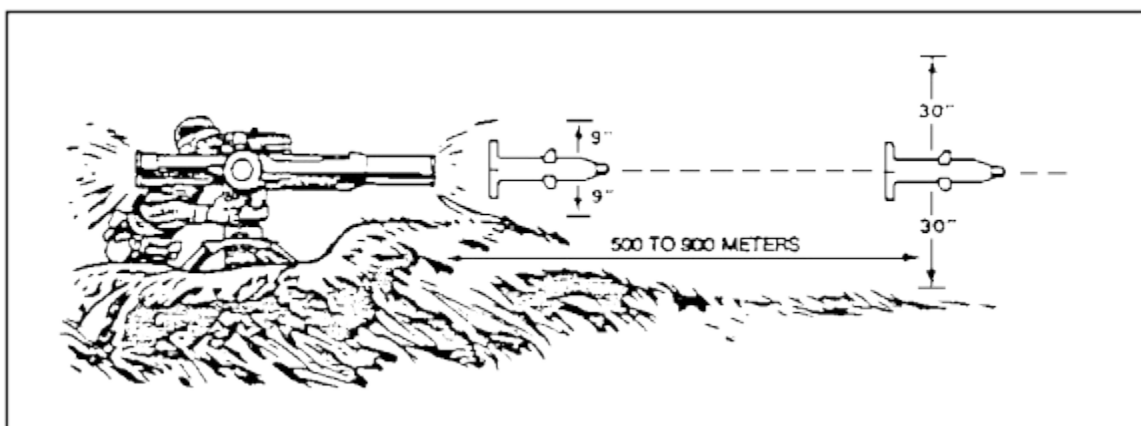
When anti-armor units are employed in urban terrain, the same considerations for position selection apply.

a. Positioning the TOW in a Building. Other considerations apply if the TOW is positioned in a building. You fire the TOW from a building only when the following conditions exist:

- The building is sturdy.
- The ceiling is at least two meters (seven feet) high.
- The room is at least five meters by eight meters (17 feet by 24 feet) or larger.
- There are two square meters (20 square feet) of ventilation to the rear of the system (an open door two meters by one meter (seven feet by three feet) provides that much ventilation).
- Glass is removed from all windows and doors, the floor is swept, and furniture and other objects that could be blown around are removed from the room.
- Everyone in the room is wearing earplugs and ballistic eye protection and is positioned forward of the rear end of the launch tube.

b. TOW Firing Limitations in Urban Terrain. Urban terrain affords the TOW squad improved conditions to maximize cover and concealment. However, you must consider firing limitations. Two clearance requirements ensure that a missile will not hit the ground before reaching a target:

- There should be at least nine inches of muzzle clearance around the end of the launch tube. This ensures that the wings and the control surfaces do not hit anything when they extend after the missile clears the launch tube. If the wings are damaged or if they catch on an object, the missile will fly erratically or go to the ground.
- There should be at least 30 inches of clearance between a gunner's line of sight to a target and any obstruction that is between 500 and 900 meters from the firing position, as shown in [Figure 1-11](#).



**Figure 1-11. Clearance Requirements.**

If line-of-sight clearance is less than 30 inches, the probability of the missile's hitting the ground or an obstruction is increased. [Figure 1-12](#) shows the probability of survival for the TOW. A missile does not precisely follow a gunner's line-of-sight to the target.

		HEIGHT OF LINE OF SIGHT ABOVE THE GROUND		
		18 INCHES	20 INCHES	30 INCHES
RANGE TO TARGET	200 M	.98	.98	1.0
	300 M	.95	.96	1.0
	400 M	.91	.91	.98
	500 M	.86	.91	.98
	1,000 to 3,000/3,750M	.56	.61	.93

**Figure 1-12. Probability of Survival for the TOW.**

#### 7. Kneel the Launcher.

Use the following procedures to lower (kneel) and raise the launcher.

a. Lower the Launcher Below Ground Level. If the gunner is being suppressed by fire and must further conceal the TOW, he can kneel (lower) the launcher below ground level. To kneel the launcher, follow these steps:

- Have the gunner lift the encased missile with his right shoulder.
- Release the friction locking handle and the detent stop on the rear leg and allow the rear leg to slide back into its notch. The launcher will move back by its own weight.
- Depress and lock the launch tube in the full DOWN position so that it does not stick above the frontal protection.

b. Raise the Launcher. To raise the launcher, follow these steps:

- Lift the rear of the encased missile and push forward and down on the rear leg. (The elevation and the azimuth locks must be engaged).
- Check the level indicators and the friction locking handle.

## **PART C - PLAN AND CONTROL TOW SECTION FIRES**

### 1. Fire Planning.

Fire planning is an integral part of the troop-leading procedure. This planning starts as soon as a leader receives a mission and continues until the mission is accomplished. The goal of fire planning is to determine how platoon leaders should distribute and control the fires of their platoons to best support

an operation. Fire planning also includes indirect fire. However, this paragraph discusses direct fire only.

a. Assignment of Sectors. The platoon leader assigns the general positions to his sections to cover the assigned sector of fire. He uses easily identifiable terrain features to define the limits of each sector. The TOW section leader selects the precise weapon positions and continues the fire planning process by drawing a sector sketch.

(1) Prepare a Sector Sketch. Each section leader prepares two copies of a sector sketch to help him coordinate the fires of his squads, as shown in [Figure 1-13](#). The section leader's sector sketch includes the section's primary, alternate, and supplementary positions. He keeps one sketch and gives the other to his platoon leader. The sector sketch shows the following:

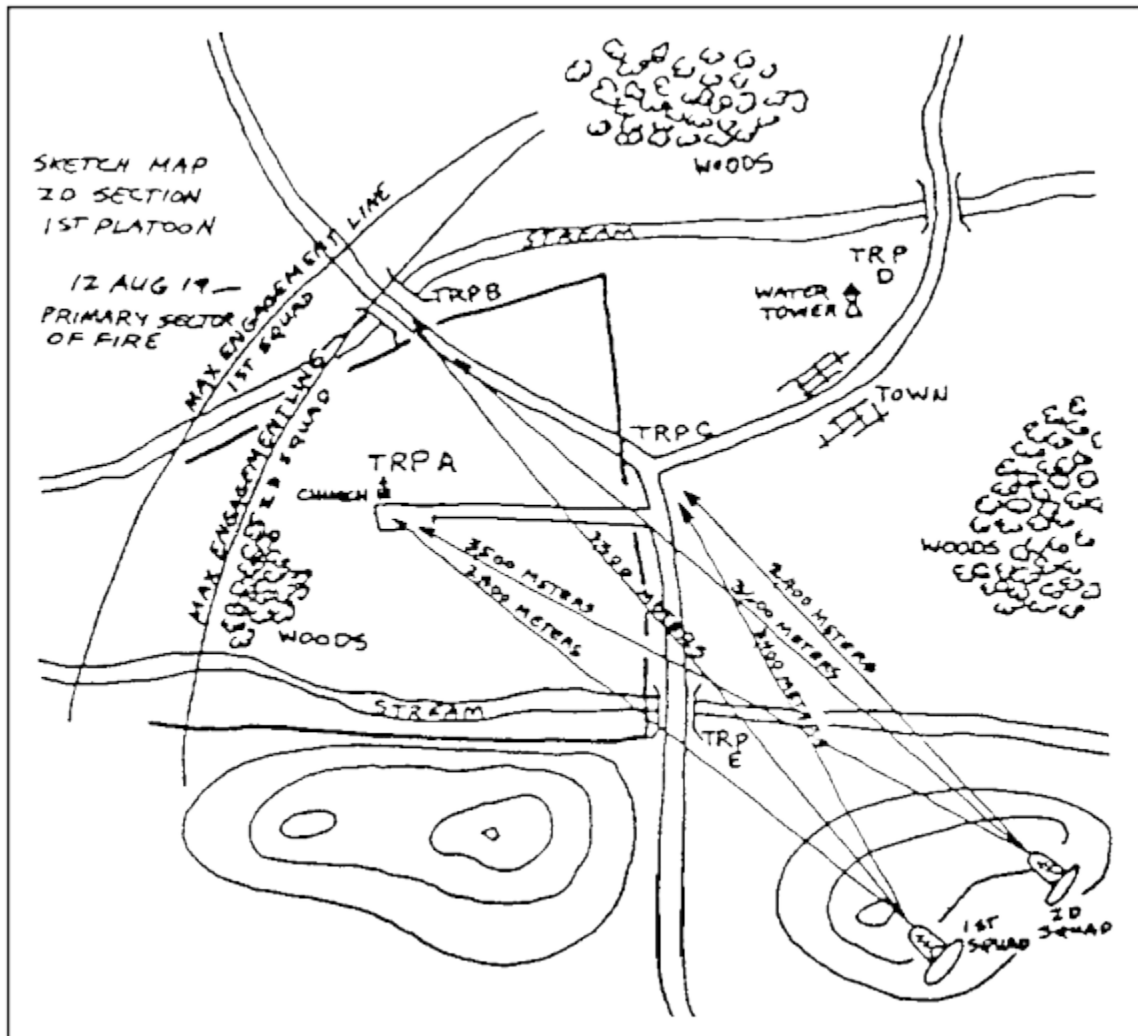
- The main terrain features in the sector of fire and the ranges to them.
- The squad's primary and secondary sectors of fire.
- The maximum engagement lines.
- The engagement areas.
- The target reference points (TRPs).
- All dead space.
- The phase lines where firing should begin or where the squad is to disengage.
- Obstacles and indirect-fire targets.

(2) Ensure that TOWs are Sited Correctly. The platoon leader checks the weapon positions to ensure that the TOW systems are sited correctly. If possible, he walks around the position and checks it from the enemy's perspective. Then he uses the section sector sketches to make a platoon sketch, as shown in [Figure 1-14](#). He makes two sketches. He keeps one and gives the other to his company commander. The platoon leader also uses the section sector sketches to develop an engagement matrix, as shown in [Figure 1-15](#). This matrix shows what engagement areas can be covered by each section and from each position.

b. Defensive Fire Planning. To develop a defensive fire plan, the Anti-armor leader uses the following procedures:

- Assigns to each subordinate unit either a primary and a secondary sector of fire or an engagement area, a primary position, and one or more alternate positions.
- Designates targets and additional fire control measures, such as TRPs, phase lines, or target priorities, to coordinate fire when more than one section is firing into the same engagement area or sector.





**Figure 1-13. Section Sector Sketch.**

- Integrates target information from subordinate leaders (normally provided on section sector sketches, individual squad range cards, or both). He then reviews this target information to ensure that fire is properly distributed across his sector and that sufficient control measures have been established.

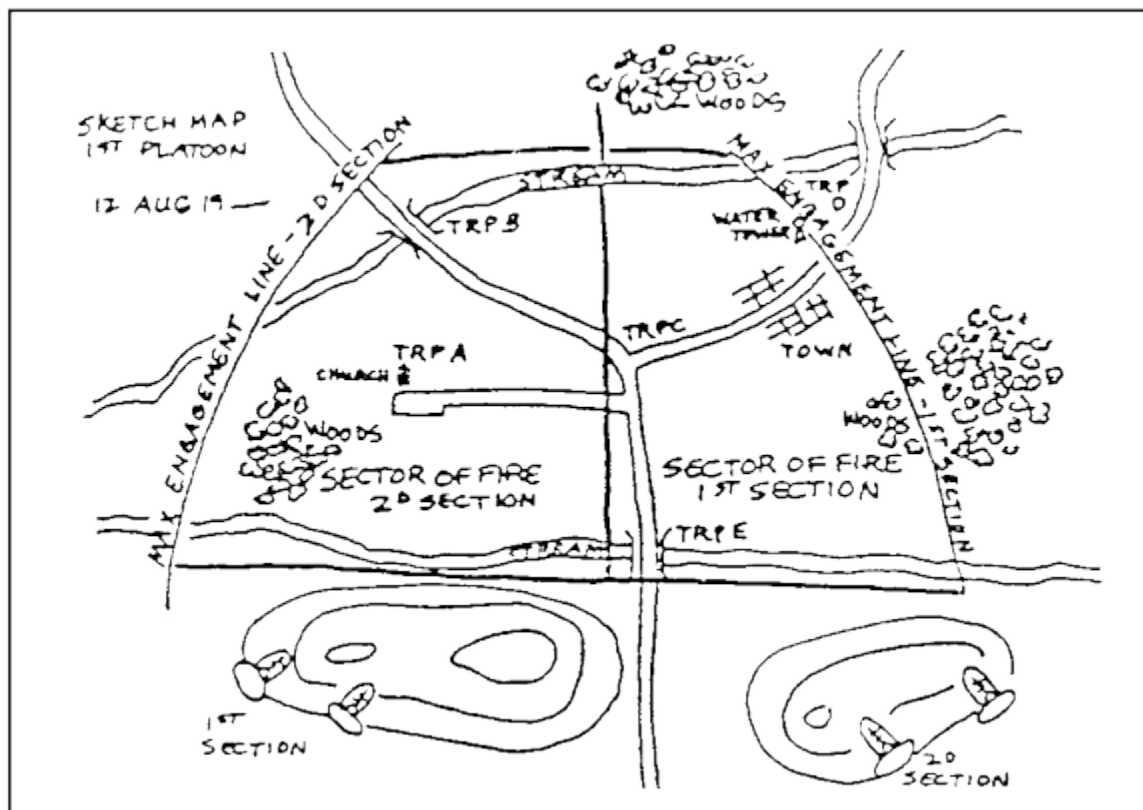


Figure 1-14. Platoon Sector Sketch.

POSITION		TRP				
		A	B	C	D	E
SECTION 1:	PRIMARY	X	X	X		
	ALTERNATE	X	X			
	SUPPLEMENTARY			X	X	X
SECTION 2:	PRIMARY		X	X		X
	ALTERNATE			X		X
	SUPPLEMENTARY				X	

Figure 1-15. Platoon Engagement Matrix.

- Coordinates and integrates his TOW fires with those of tanks, other Anti-armor weapons, and indirect fire.
- Completes the fire plan and gives a copy of the sector sketch to the control headquarters or to the supported unit commander--for example, to the Anti-armor company commander or the task force commander--and to the mortar platoon leader and the fire support team (FIST).

c. Offensive Fire Planning. Offensive fire planning relies more on fire patterns and standing operating procedures (SOPs) to bring effective fire onto the enemy than does defensive fire planning. This is often true during a movement to contact when knowledge of the enemy is

vague or when the terrain is unknown. To compensate for not knowing the terrain, the platoon leader can use a thorough map reconnaissance along with a study of terrain information from the battalion Operations and Training Officer (S3). The platoon leader uses this information and the commander's scheme of maneuver to perform the following actions:

- Select positions where his sections can overwatch the forward movement of or can provide support-by-fire for the supported unit.
- Ensure that TOW fires are integrated with other overwatching fires. This can be done using TRPs, phase lines, priorities of engagement, and sectors of fire in the same way as in defensive fire planning.
- Plan how targets will be designated for TOW engagement. This can be done with colored smoke, signal panels, or other means.
- Identify areas in which TOW overwatch is not possible and to advise the commander of this so that other weapons can be assigned to this task.
- Identify routes between positions along the axis of advance or in the zone of action that allow rapid movement and that provide security for the moving anti-armor sections.
- Complete the plan with the approval of the supported commander and to brief subordinate leaders.

## 2. Fire Control and Distribution.

Fire control measures are usually established by the platoon leader or the company commander. They are designed to take advantage of the TOW's range, accuracy, and destructive power by distributing TOW fires equally across the battle area. Effective fire control and distribution measures accomplish the following:

- Prevents firing more than one missile at the same target.
- Avoids revealing TOW locations.
- Ensures complete coverage of all armor avenues of approach.
- Enables TOWs to fire first.
- Provides for the destruction of the most important targets first.
- Gains the best shot at a target.
- Affords the leader the ability to better control TOW fires.

The success of anti-armor platoons in combat depends upon how quickly and effectively platoons engage targets. All TOW fires must be controlled to ensure the full coverage of the target area and to prevent the multiple engagement of a single target. This paragraph discusses some standard techniques for platoon and section leaders to control and distribute fires in combat.

Fire control and distribution measures must be simple. Leaders must know them well. Leaders must use these measures routinely, with no need for detailed instructions. The following are the commonly used measures for controlling the fires of an anti-armor platoon.

a. Priority of Engagement and Sectors of Fire. Fire control measures are of two types: priority of engagement and sectors of fire.

(1) Priority of Engagement. Targets in battlefield formations vary. They can be tanks, BMPs, BRDMs, BTRs, or air defense vehicles. TOW fires can be distributed rapidly and controlled effectively if a priority of engagement is assigned to all the sections or if each section is assigned a specific type vehicle to engage initially. For example, one section can engage tanks while another engages command vehicles and BMPs. This method works best during offensive or retrograde operations when surprise targets may appear, allowing little time for detailed instructions. Regardless of engagement priorities, a target presenting a threat to a unit must be engaged immediately. Sometimes, a priority of engagement by type of vehicle may be assigned. For example, if enemy air defense weapons are preventing the Air Force or attack helicopters from operating in the forward battle area, the destruction of enemy air defense weapons may be given a priority. If enemy carrier-mounted antitank guided missiles are reducing the effective employment of tanks, they may be designated as priority targets. When a target is assigned an engagement priority, it is engaged first when it appears. Other targets are engaged after the priority target has been destroyed. The priority of engagement can be used as a failsafe measure if radio communication is lost or jammed.

Engagement priorities can prevent multiple engagements of one target when:

- Sectors of fire have not been assigned.
- Overlapping sectors of fire have been assigned.
- More than one section is covering a main avenue of approach.

NOTE: In the absence of assigned engagement priorities, you should establish priorities to destroy first those targets that are the greatest threat to the accomplishment of your mission and targets which, when destroyed, will break up the momentum of the enemy's attack by destroying his command and control element.

(a) Use of Code Words to Change Engagement Priorities. Code words may be used to change engagement priorities. For example, a code word can be used to shift priority from tanks to air defense vehicles when the latter threatens friendly air operations. Engagement priorities are also useful when neither sectors of fire nor overlapping sectors of fire have been assigned. Like phase lines, engagement priorities are useful if communications are lost.

(b) Emergency Signals. Effective fire control depends upon good communications. Radio is the main means that commanders and leaders have to

control their TOW assets. However, mainly in a nuclear or electronic warfare (EW) environment, radio communication can be lost. Emergency signals are used to control the fires of squads and sections, and wire also can be used. Alternate signals must be known. Orders must be issued so that personnel know how to continue the battle if initial communications are lost. Sometimes, pyrotechnics are the only method available to control fires. Their use must follow the signal operation instructions (SOI) and must be practiced often. Examples of simple signals that the SOI may specify are as follows:

<u>Signal</u>	<u>Meaning</u>
Red star cluster	Stop firing
Green star cluster	Start firing
White star cluster	Switch to secondary sector
Red and white combination	Switch to alternate sector

(c) Fire Commands. Because speed and accuracy are vital in target engagement, fire commands must be clear and concise. In the stress of battle, a platoon leader or a section leader must be able to analyze a situation quickly and to follow up with concise, understandable, and complete fire commands.

The use of a standard fire command ensures that the correct target is engaged rapidly. It also minimizes radio transmission time. Fire commands should be short. The following fire elements of the standard fire command should be used.

<u>FIRE COMMAND</u>	<u>EXPLANATION</u>
ALERT*	"SQUAD" warns the squad of a fire mission.
MISSILE TYPE	"TOW 2 ALPHA"
TARGET IDENTIFICATION/TARGET LOCATION	A brief description of the target. The squad leader tells the gunner where to look for the target by giving the direction and the distance from the TOW and the direction and the distance from a terrain feature or a target reference point. The squad leader uses cardinal LEFT/RIGHT directions in squad fire commands.
METHOD OF ENGAGEMENT	Used only when the gunner is faced with several targets. Principal methods include frontal, depth, or cross fire.
EXECUTION	The command "FIRE" tells the gunner

to engage the target as soon as he acquires and begins to track it. "AT MY COMMAND, FIRE," given in two parts, allows the leader to maintain the element of surprise and permits the massing of fires.

SUBSEQUENT FIRE COMMAND\*\* "CEASE TRACKING" or 'CEASE TRACKING, OUT OF ACTION" is issued after observing the detonation of a warhead or when the squad leader desires to halt firing for any reason. "CEASE TRACKING" notifies the crew that the squad leader intends to remain in position and engage another target immediately or when one appears. "CEASE TRACKING, OUT OF ACTION" notifies the crew that the squad leader intends to move to another position.

\* When the section leader is calling a fire mission to your squad over wire or radio, the establishment of communications is a sufficient alert.

\*\* Only the elements which change from the previous fire command are announced in this command. However, "CEASE TRACKING" or "CEASE TRACKING, OUT OF ACTION" is always announced in the subsequent fire command.

(d) Format. A standard format for fire commands ensures that all needed information is given quickly. Omitting the control element when it is not needed shortens the fire command. Also, the description may be omitted when target priorities have been assigned--for example, when the targets are tanks, the fire command specifies otherwise. This omission simplifies the command if tanks and BMPs appear at the same time, but the platoon or the section has been directed to engage tanks only. In sequence, the elements of a fire command are as follows:

<u>Element</u>	<u>Example</u>
Alert	TANGO FOUR ONE, THIS IS TANGO FOUR ZERO, ENGAGEMENT CONDITION: YELLOW/WHITE
Missile Type	TOW 2 ALPHA
Description	FOUR TANKS AND THREE BMPs
Location	EAST OF TRP ZERO ZERO FOUR

Control (option)	DEPTH
Execution	FIRE AT MY COMMAND
Closing	CEASE FIRE

(e) Elements. The platoon leader normally gives the fire command to the section leaders. Because each squad is in the platoon radio net, the section leaders rarely need to repeat the entire fire command to the other squads in their sections. If more instructions are needed, only the elements of the fire command that change are given. Once the platoon leader completes a fire command, each section leader acknowledges it in turn. The second squad in each section should then acknowledge so that each section leader knows that both squads have received and understood the command. The following sample SOI extract identifies the elements involved in the sample fire commands.

<u>Sample SOI Extract</u>	<u>Call Sign</u>
Platoon	C5T
Platoon leader	C5T40
1st Squad (1st section leader)	C5T41
2d Squad	C5T42
3d Squad (2d section leader)	C5T43
4th Squad	C5T44
Platoon sergeant	C5T45

EXAMPLE 1: This is the platoon leader's fire command for both sections of the platoon to engage assaulting tanks.

TANGO (entire platoon), THIS IS TANGO FOUR ZERO  
TEN TANKS  
DIRECT FRONT  
CROSS  
FIRE

EXAMPLE 2: This is the platoon leader's fire command to engage assaulting BMPs and tanks. The platoon leader alerts the entire platoon and indicates that he wants both sections to fire. He then specifies that Section 1 will engage the BMPs (TANGO FOUR ONE, BMPs) and that Section 2 will engage the tanks (TANGO FOUR THREE, TANKS). Because the platoon leader leaves out the control element, each section leader adds it by telling the other squad, "Depth, cross," if needed for control within the section.

FRONTAL FIRE is understood unless the section leader specifies otherwise.

TANGO, THIS IS TANGO FOUR ZERO

BMPs AND TANKS

WEST OF TRP ZERO ZERO SEVEN

TANGO FOUR ONE, BMPs

TANGO FOUR THREE, TANKS

FIRE

EXAMPLE 3: This is the platoon leader's command to continue the engagement after the BMPs are destroyed. The platoon leader instructs Section 1 to shift fire to the tanks and to continue to engage. Because the control element is omitted, FRONTAL FIRE is understood. Although the command does not mention Section 2, that section continues to fire, based on his last instructions.

TANGO FOUR ONE, THIS IS TANGO FOUR ZERO

TANKS

EXAMPLE 4: This is the platoon leader's command to stop the engagement.

TANGO, THIS IS TANGO FOUR ZERO

CEASE FIRE

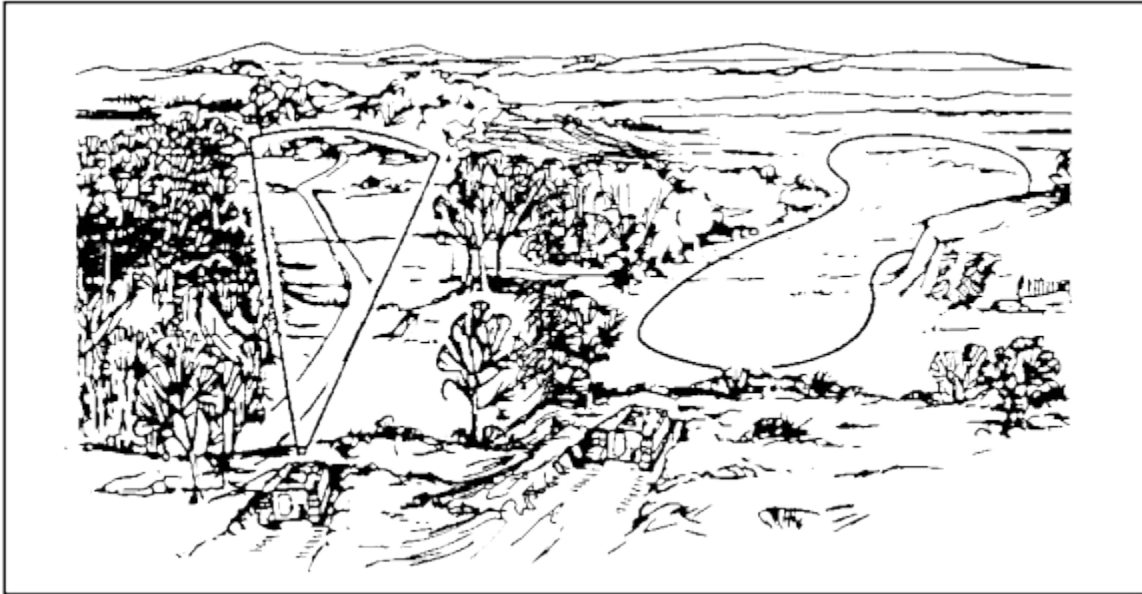
b. Sectors of Fire and Engagement Areas. Sectors of fire and engagement areas are specific areas to be covered. They are assigned to each squad, section, and platoon. They clearly identify the part of the battlefield that must be covered by observation and fire. In most situations, the terrain and the number and the type of weapons available to cover an area dictate how sectors of fire or engagement areas are assigned.

(1) Sector of Fire. A sectors of fire is the area that a TOW squad is assigned to cover. Sectors are assigned to ensure that fires are distributed throughout the battle area; that all armor avenues of approach are covered; and to facilitate the massing of fires. Sectors of fire are usually fan-shaped, but they can be any shape, as shown in [Figure 1-16](#).

A sector of fire (as shown in [Figure 1-17](#)) is designated by its left and right limits. The limits of the sector can be defined by easily recognizable terrain features, such as roads, streams, hills, or wood lines. Sectors of fire usually extend from firing positions to the maximum engagement range of the TOW. They should be assigned so that each is fully covered with the correct type of fire. Also, mutual support is maintained between sections. Mutual support can be improved by assigning primary and secondary sectors of fire, as shown in [Figure 1-18](#). That is, to improve mutual support, one section's secondary sector of fire should correspond to another section's primary sector of fire. When no targets are in the primary sector, fire is shifted to the secondary sector upon

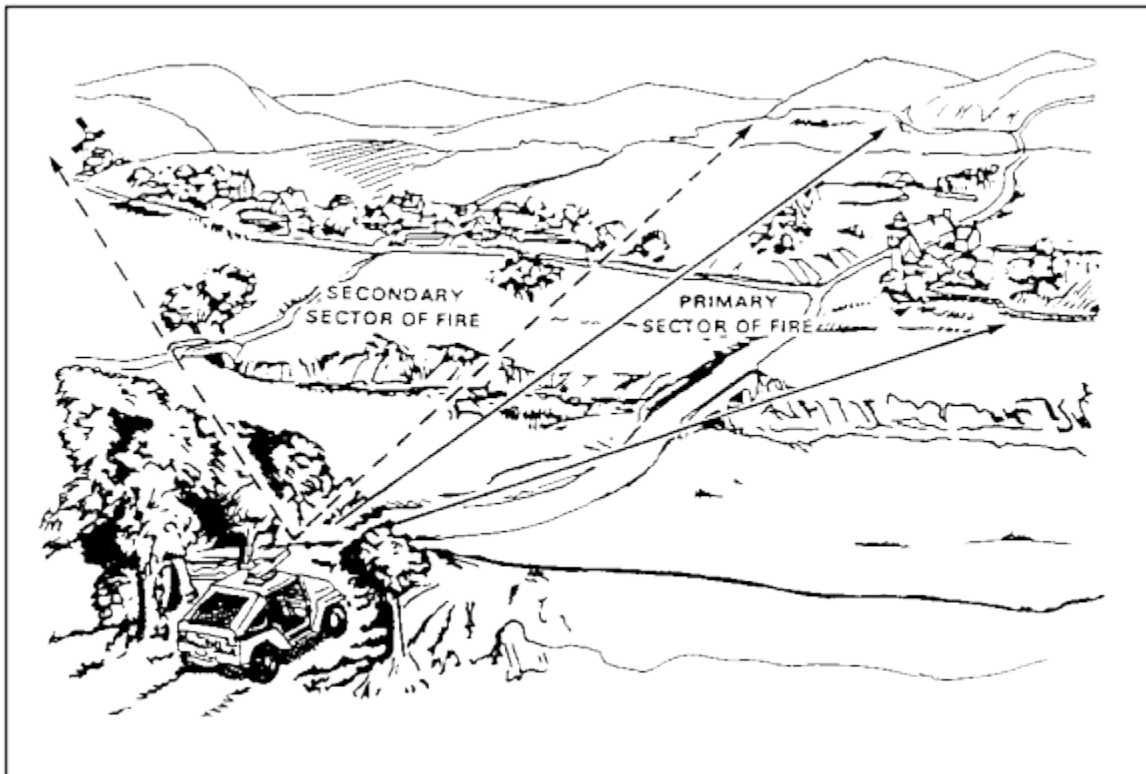


order. It also can be shifted to cover another TOW section if that section must be moved to an alternate position.

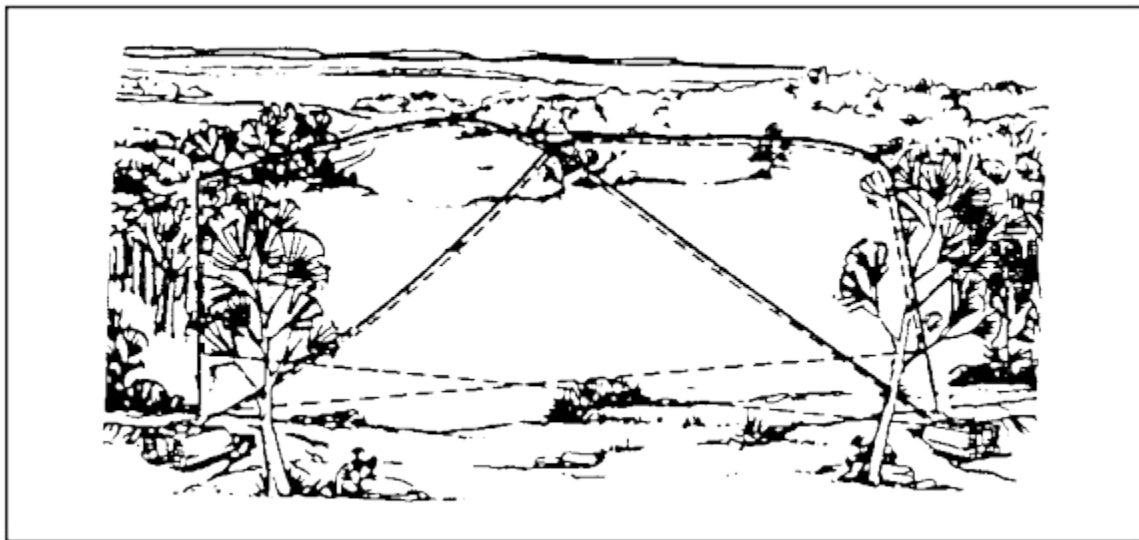


**Figure 1-16. Sectors of Fire.**

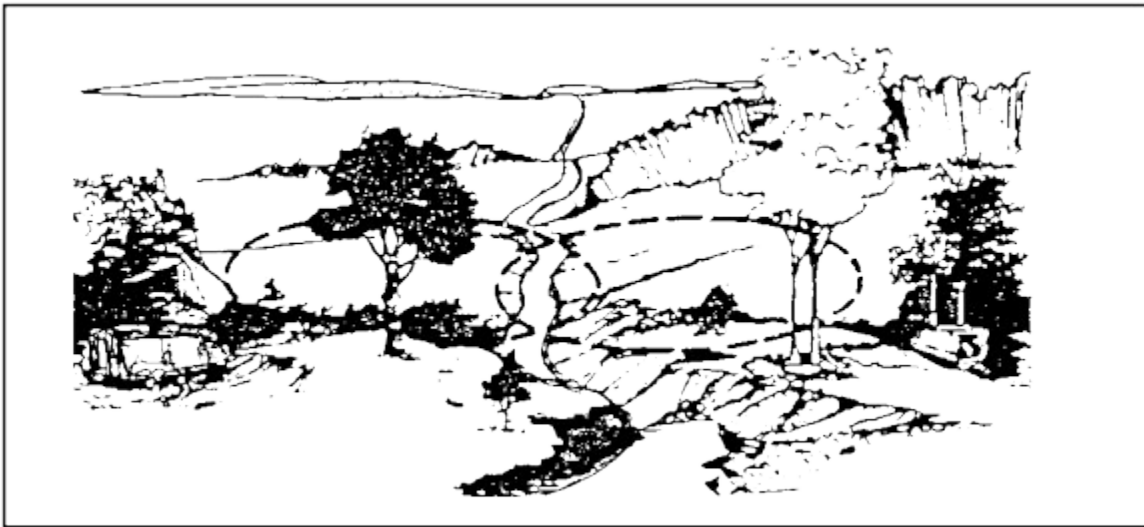
- (a) Secondary Sector of Fire. A TOW squad is assigned a secondary sector of fire along with its primary sector of fire. When the terrain permits, the primary sector of one squad is the secondary sector of another. This provides mutual support between squads and permits the massing of fires in either sector, as shown in [Figure 1-18](#).
  - (b) Overlapping Sectors of Fire. A TOW squad may be assigned a sector of fire that overlaps another squad's sector, as shown in [Figure 1-19](#). This is done to concentrate TOW fires in a critical area and to gain a flanking shot. The platoon leader or the company commander coordinates the two squads' fires or designates the leader in the more favorable position as responsible for fire coordination in the sector.
  - (c) Report Sectors of Fire That Cannot Be Covered. If your squad is assigned a sector that it cannot cover, report it immediately to your leader or commander.
- (2) Engagement Area. An engagement area is an area alongside a mounted enemy avenue of approach that is defined by the terrain around it, as shown in [Figure 1-20](#). This surrounding terrain must be easily identifiable. It must be located in such a way that the fires of multiple friendly forces can be concentrated onto it. Engagement areas may be used at platoon, company, and battalion level. Other measures, such as TRPs and phase lines, should be used along with engagement areas to further control and distribute fires.



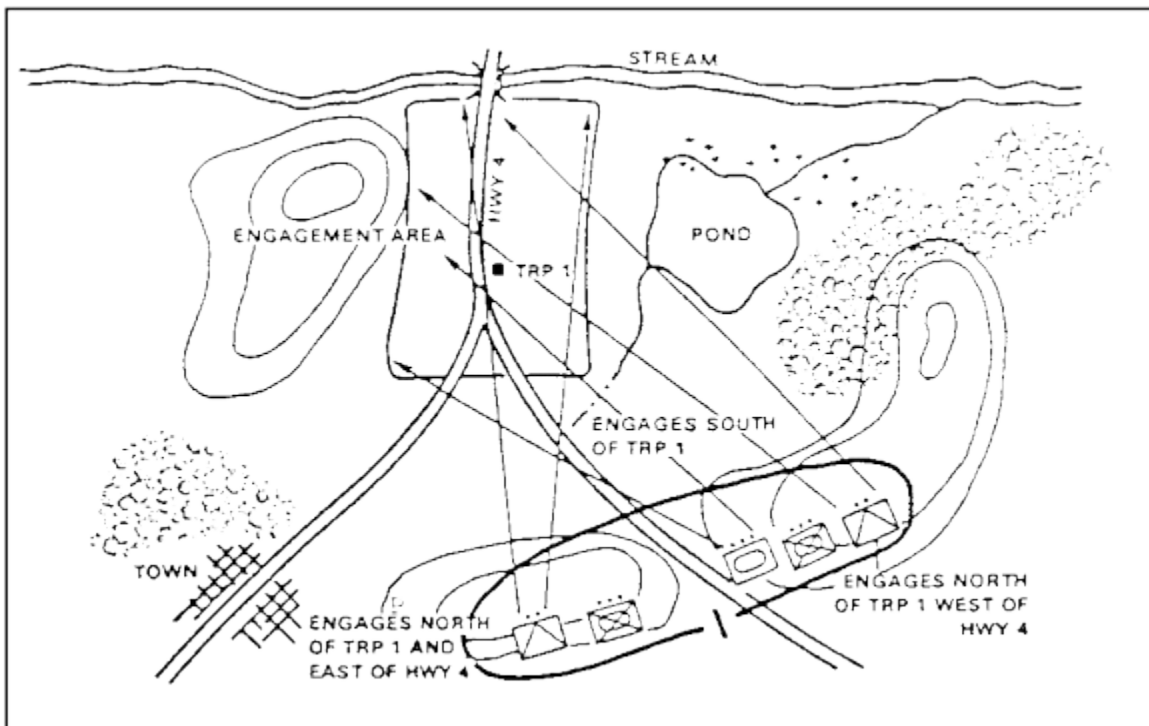
**Figure 1-17. Primary and Secondary Sectors of Fire.**



**Figure 1-18. Secondary Sector of Fire.**



**Figure 1-19. Overlapping Sectors of Fire.**

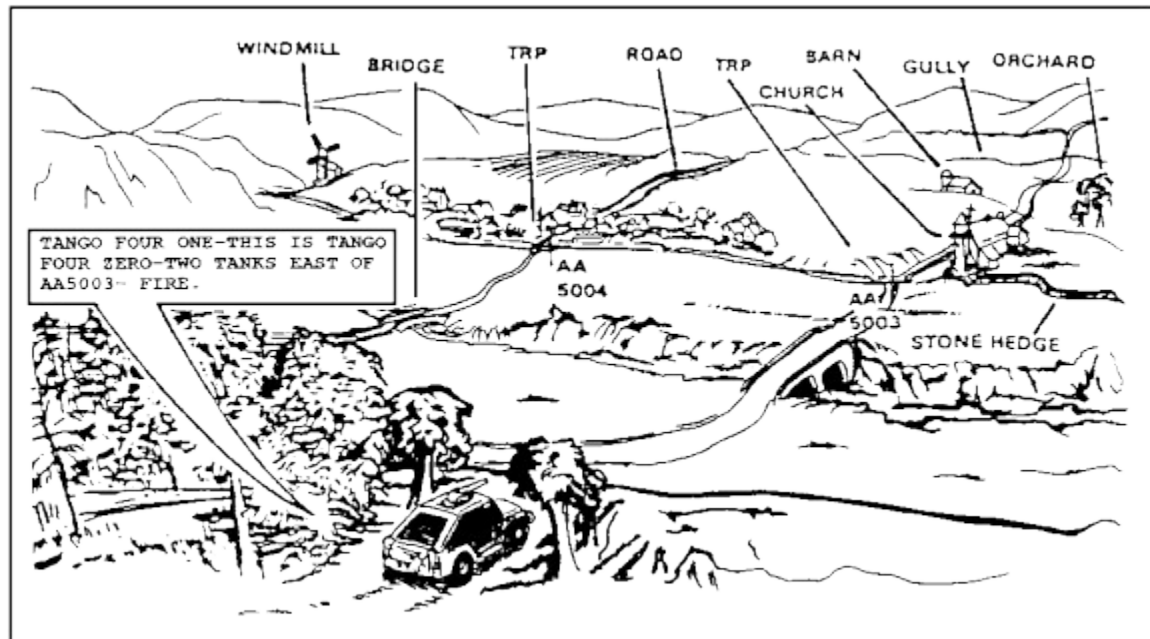


**Figure 1-20. Engagement Area.**

For example, if a mounted enemy avenue of approach is narrow or if the fire of an entire platoon is needed in a critical area, such as a choke point, sectors of fire can overlap. Because this increases the problem of control and the probability of target overkill, other control measures (engagement priorities, fire patterns, TRPs) are also needed. When sectors of fire overlap, leaders must select positions where they can observe and coordinate fires.

c. Target Reference Point. A TRP is a prominent natural or man-made terrain feature, such as a road intersection, hill, or bridge, designated by the commander, leader, or gunner to allow the

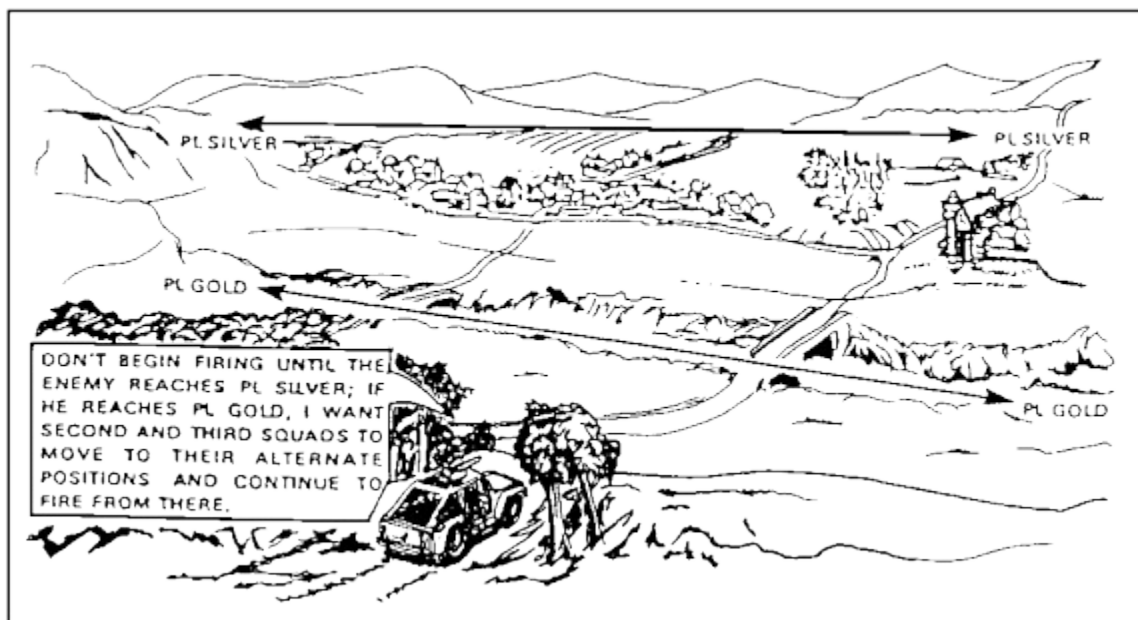
rapid identification of targets and to control direct fires. A TRP is a reference point (RP) for designating targets, for shifting fire, or for assigning sectors of fire. They are recorded on range cards for easy reference, as shown in [Figure 1-21](#).



**Figure 1-21. Use of Target Reference Points.**

**NOTE:** The direction from TRPs is given in cardinal directions (north, south, etc.) rather than as left or right. However, when you are giving fire commands to your squad and are in the same location as the squad, you can use left or right ease of understanding and rapid target engagement.

(1) In Defense. In the defense, TRPs are located along mounted avenues of approach where the enemy is likely to be and on prominent terrain features. To avoid confusion, TRP should be limited to the number required to distribute and control fire. TRPs may be used to control both direct and indirect fires. When a TRP is used to designate targets, as shown in [Figure 1-22](#), directions are given by the compass rather than by right or left because each squad may be facing the TRP from a different direction.



**Figure 1-22. Use of Phase Lines to Control Fires.**

(2) Numbering TRPs. TRPs are numbered sequentially, using three-digit numbers. However, the numbers are not chosen at random. When a TRP is recommended and accepted as an indirect fire target, it is given a number from an assigned block of target identification numbers. A target identification number has two letters and four numbers--for example, AB 5010. When applicable, the identification numbers are recorded on range cards and sector sketches for easy reference and coordination. To simplify fire commands in a direct-fire engagement, targets may be referred to by the last three digits. For example, target AB 5010 may be referred to as TRP 010.

d. Phase Lines. A phase line is a linear control measure normally used to control movement. It is also used to control and distribute the fire of several widely separated anti-armor squads or platoons.

(1) Use of Terrain Features to Designate Phase Lines. Any prominent or man-made linear terrain feature, such as a ridge line, road, railroad tracks, river, or stream, may be used to designate a phase line. In either offensive or defensive operations, crossing a phase line can be the signal to start or stop firing, to shift fire to another sector, or to indicate when squads, sections, or platoons should move to alternate or supplementary positions. [Figure 1-22](#) shows a platoon leader using phase lines to cue his squads to fire and displace to an alternate position.

(2) Use of Phase Lines to Specify Target Priorities. Phase lines can also be used to specify when target priorities are to change. For example, the platoon leader might say, "I want both sections to engage only tanks when the enemy reaches PL Silver. Then I want Section 1 to begin engaging BMPs and any command vehicles identified." In addition to being a simple and effective control measure, a phase line can be assigned as an emergency control measure when radio communication is interrupted. Section leaders

know that if an enemy reaches a designated phase line, they are to follow their orders without further communication.

### 3. Fire Patterns.

Fire patterns are standard techniques for distributing tank and anti-armor fires upon multiple targets. Basically, have each TOW squad start at opposite ends of a formation and work toward the center to prevent multiple engagements of one target. They are most often used when terrain-oriented fire control measures, such as TRPs or engagement areas, have been identified. When used, fire patterns are announced as part of the section fire command. The three basic fire patterns are frontal, cross, and depth.

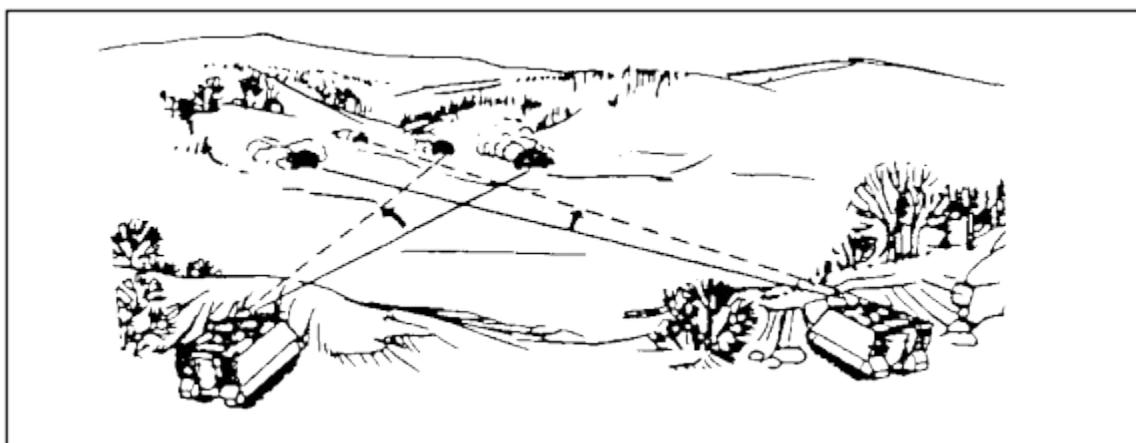
a. Frontal Fire. Frontal fire (shown in [Figure 1-23](#)) is most effective when targets are dispersed or are moving laterally across a sector of fire. In employing frontal fire, flank squads engage flank targets first. As targets are destroyed, fire is shifted toward the center of the formation. Frontal fire is least effective when target vehicles are moving toward the firing positions. When this happens, the target vehicles' observation and firepower are oriented toward the platoon. Therefore, friendly squads must fire into the frontal (thickest) armor on the target vehicle.



**Figure 1-23. Frontal Fire.**

b. Cross Fire. Cross fire (shown in [Figure 1-24](#)) is most effective when targets are dispersed laterally but are moving toward the firing positions. It is used for flank shots and for avoiding detection when the target is moving toward firing positions. Each squad engages a target on the opposite flank. As targets are destroyed, squads shift fire toward the center of the formation.

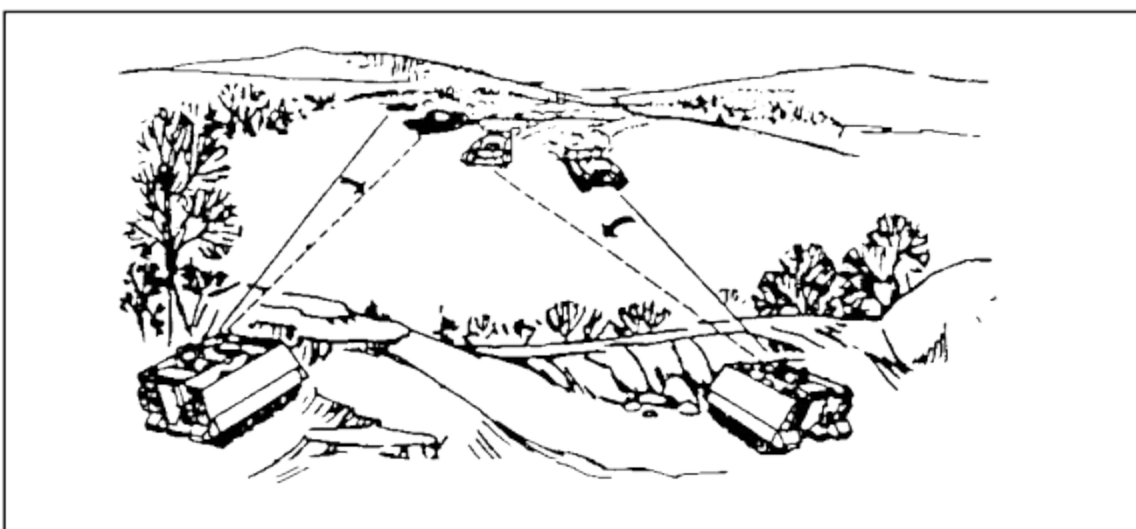




**Figure 1-24. Cross Fire.**

c. Depth Fire. Depth fire (shown in [Figure 1-25](#)) is most effective when targets are exposed in depth. One squad or section engages the nearest targets while the other engages the farthest targets. Then they shift fire toward the center of the formation. If the unit SOP does not specify which squad or section engages near targets and which engages far targets, then the determination of which squad or section fires at what target is made by the leader who is responsible for controlling the fires.

d. Changes to Fire Patterns. Fire patterns are changed as needed. After being engaged, the enemy will change his formation or direction of movement, which requires a corresponding change to fire patterns. Enemy vehicles avoid moving in easily recognizable formations. Also, enemy formations appear as a mass of vehicles due to uneven terrain and point of view. The fire pattern that is selected should be based upon how the formation appears relative to the firing position and the leader's estimate of how best to engage the enemy.



**Figure 1-25. Depth Fire.**

## PART D - INSPECT AN ANTIARMOR RANGE CARD

### 1. Range Card.

A range card is a sketch or a diagram of the terrain that a weapon must cover by fire. It shows possible target areas and terrain features plotted relative to a firing position. The information on a range card is used to plan and control fire, to rapidly detect and engage targets, and to orient replacement personnel and units.

### 2. Inspect the Range Card.

Ensure that each gunner performs the following actions:

- a. When Enemy Contact Is Possible. When enemy contact is possible, prepare one range card for each primary, alternate, and supplementary squad position. Also, prepare one for any static squad position such as in an assembly area.
- b. Prepare Copies of the Range Card. Prepare a range card as soon as possible after moving into a firing position. Prepare two copies of each range card. Retain one copy of each range card with the squad and give the other to the section leader. The section leader uses his copy to prepare a section sector sketch. Standard printed range card forms are best to use. If no forms are available, use anything available to write on.
- c. Indicate the Left and Right Limits. Draw the weapon symbol in the center of the small circle. Draw two lines from the TOW position. The lines should extend left and right to show the limits of the sector. These lines are the vehicle's left and right limits. Place a circled "L" and "R" at the end of the appropriate limit lines, as shown in [Figure 1-26](#). Even if a sector is narrow, spread the information out on the range card as much as possible to ensure that all items can be easily shown.
- d. Indicate the Increments of Distance. Find the terrain feature farthest from the position that is still known to be within the weapon system's range to determine the value of each circle. Determine the distance to the terrain feature and round off to the next highest hundred. Determine the highest number of circles that will divide evenly into the distance (that is, that will result in a whole number). The result is the value of each circle. Draw the terrain feature on the appropriate circle. Clearly mark the increment for each circle across the area where DATA SECTION is written.

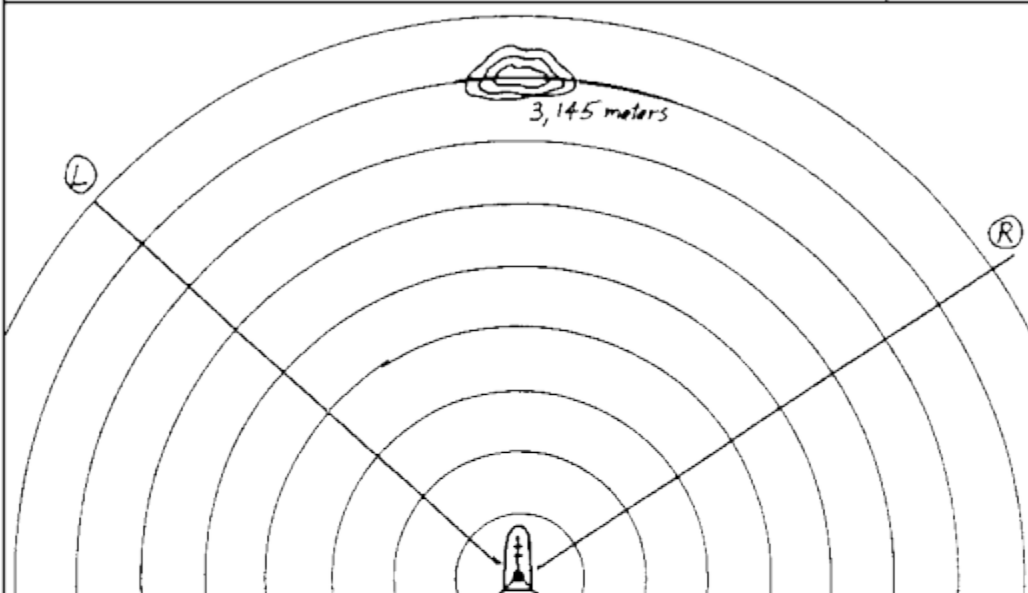
For example, a 3,145-meter hilltop is used in [Figure 1-27](#). (The increments are shown, in meters, below the line above the heading "DATA SECTION") as 4 (for 400), 8 (for 800), 12 (for 1,200), 16 (for 1,600), 20 (for 2,000), 24 (for 2,400), 28 (for 2,800), and 32 (for 3,200)). To find the distance of the hilltop from the position, read to the left or right until you reach the number 32 (for 3,200 meters). Then follow the line up from the number 32 to the right, if you read to the left to locate 32, or to the left, if you read to the right to locate 32. The line will intersect with the symbol for the hilltop, showing it to be located approximately 3,200 meters from the position.



<b>STANDARD RANGE CARD</b> <small>For use of this form see FM 7-7J. The proponent agency is TRADOC.</small>					
SQD _____ PLT _____ CO _____	May be used for all types of direct fire weapons.				MAGNETIC NORTH
<b>DATA SECTION</b>					
POSITION IDENTIFICATION				DATE	
WEAPON				EACH CIRCLE EQUALS _____ METERS	
NO.	DIRECTION/ DEFLECTION	ELEVATION	RANGE	AMMO	DESCRIPTION
REMARKS:					

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**Figure 1-26. Placement of Weapons Symbol and Left and Right Limits.**

<b>STANDARD RANGE CARD</b> <small>For use of this form see FM 7-7J. The proponent agency is TRADOC.</small>					
SQD _____ PLT _____ CO _____	May be used for all types of direct fire weapons.				MAGNETIC NORTH
					
<b>DATA SECTION</b>					
POSITION IDENTIFICATION				DATE	
WEAPON			EACH CIRCLE EQUALS _____ METERS		
NO.	DIRECTION/ DEFLECTION	ELEVATION	RANGE	AMMO	DESCRIPTION
REMARKS:					
<small>DA FORM 5517-R, FEB 86</small>					

**Figure 1-27. Circle Value.**

Round the distance to 3,200 meters.

Divide 3,200 meters by eight to equal 400 meters (the value of each circle): 3,200 divided by 8 = 400 meters.

**NOTE:** To find the greatest number of circles that will divide evenly into the distance in meters, start with nine (because there are

nine circles on the standard range card). If nine will not divide evenly into the distance, try eight (the next highest number of circles on the standard range card). Continue until you find the greatest number of circles that will divide evenly into the distance.

(1) Limits. [Figure 1-28](#) shows a farmhouse at 2,000 meters on the left limit. The right limit is noted by the wood line at 2,600 meters. The distance to these features can be determined by using a map or a handheld laser range finder. The circle markings can help in positioning the features on the range card.

(2) TRPs and Reference Points. All the TRPs and reference points (RPs) in the sector should be marked with a circled number, beginning with 1. [Figure 1-29](#) shows the hilltop as RP 1 and two road junctions as RP 2 and RP 3. Sometimes, a TRP and an RP are the same point, as with RP 2 and RP 3. This occurs when a TRP is used for target acquisition and range determination. The TRP is marked with the first designated number in the upper right quadrant. The RP is marked in the lower left quadrant of the cross. Road junctions are drawn in three steps:

- First, the range is determined to the junction.
- Second, the junction is drawn.
- Third, connecting roads from the road junction are shown.

<b>STANDARD RANGE CARD</b> <small>For use of this form see FM 7-7J. The proponent agency is TRADOC.</small>						
SQD _____ PLT _____ CO _____	May be used for all types of direct fire weapons.				MAGNETIC NORTH	
<b>DATA SECTION</b>						
POSITION IDENTIFICATION				DATE		
WEAPON				EACH CIRCLE EQUALS _____ METERS		
NO.	DIRECTION/ DEFLECTION	ELEVATION	RANGE	AMMO	DESCRIPTION	
REMARKS:						

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**Figure 1-28. Terrain Features for Left and Right Limits.**

STANDARD RANGE CARD					
For use of this form see FM 7-7J. The proponent agency is TRADOC.					
SQUAD _____	May be used for all types of direct fire weapons.				MAGNETIC NORTH
PLT _____					
CO _____					
DATA SECTION					
POSITION IDENTIFICATION				DATE	
WEAPON				EACH CIRCLE EQUALS _____ METERS	
NO.	DIRECTION/ DEFLECTION	ELEVATION	RANGE	AMMO	DESCRIPTION
REMARKS:					

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**Figure 1-29. Reference Points and Target Reference Points.**

(3) Dead Space. Dead space is shown as an irregular circle with diagonal lines drawn inside, as shown in [Figure 1-30](#). The circle and the diagonal lines extend out from any object that prohibits observation or direct-fire coverage to the farthest maximum engagement line. If the area beyond the dead space can be engaged, then the circle is closed. For example, an area of lower elevation will have a closed circle because the area beyond it can be engaged.

(4) Maximum Engagement Lines. Maximum engagement lines are shown in [Figure 1-31](#). They are drawn at the maximum effective engagement ranges of each weapon if dead space does not limit range capabilities. In this figure, the maximum engagement line for the MK 19 extends beyond the dead space. This indicates a higher elevation beyond the dead space where area suppression is possible. Maximum engagement lines are not drawn through dead space. The maximum effective ranges for weapon systems used on the HMMWV interchangeable mount systems are as follows:

M2 (.50-caliber)	1,800 meters (tracer burnout) machine gun
M60 machine gun	900 meters (tracer burnout)
MR 19 machine gun	2,200 meters (impact)
TOW 2	3,750 meters (impact)

(5) Weapon Reference Point. The weapon RP shown in [Figure 1-32](#) appears as a line with a series of arrows. The line extends from a known terrain feature and points in the direction of the TOW symbol. The weapon RP is numbered last and is given a six-digit grid. When no terrain feature is available to designate as the weapon RP, the vehicle's location is shown in the "Remarks" block of the range card as an eight-digit grid coordinate. (In [Figure 1-32](#), the weapon RP is 4).

NOTE: When the weapon RP cannot be drawn precisely on the sketch due to the vehicle's location, it is drawn to the left or the right, nearest the actual direction.

e. Data Section. Complete the data section of the range card ([Figure 1-33](#)).

(1) Position Identification. Either the primary, the alternate, or the supplementary position should be noted. Alternate and supplementary positions must be clearly identified.

<b>STANDARD RANGE CARD</b> <small>For use of this form see FM 7-7J. The proponent agency is TRADOC.</small>						
SQD _____ PLT _____ CO _____	May be used for all types of direct fire weapons.				MAGNETIC NORTH	
<b>DATA SECTION</b>						
POSITION IDENTIFICATION				DATE		
WEAPON				EACH CIRCLE EQUALS _____ METERS		
NO.	DIRECTION/ DEFLECTION	ELEVATION	RANGE	AMMO	DESCRIPTION	
REMARKS:						

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**Figure 1-30. Dead Space.**

<b>STANDARD RANGE CARD</b> <small>For use of this form see FM 7-7J. The proponent agency is TRADOC.</small>					
SQD _____ PLT _____ CD _____	May be used for all types of direct fire weapons.				MAGNETIC NORTH
<b>DATA SECTION</b>					
POSITION IDENTIFICATION				DATE	
WEAPON				EACH CIRCLE EQUALS _____ METERS	
NO.	DIRECTION/ DEFLECTION	ELEVATION	RANGE	AMMO	DESCRIPTION
REMARKS:					
DA FORM 5517-R, FEB 86					

**Figure 1-31. Maximum Engagement Lines.**



<b>STANDARD RANGE CARD</b> <small>For use of this form see FM 7-7J. The proponent agency is TRADOC.</small>						
SQD _____ PLT _____ CO _____	May be used for all types of direct fire weapons.				MAGNETIC NORTH	
<b>DATA SECTION</b>						
POSITION IDENTIFICATION				DATE		
WEAPON				EACH CIRCLE EQUALS _____ METERS		
NO.	DIRECTION/ DEFLECTION	ELEVATION	RANGE	AMMO	DESCRIPTION	
REMARKS:						
DA FORM 5517-R, FEB 86						

**Figure 1-32. Weapon Reference Point.**

<b>STANDARD RANGE CARD</b> <small>For use of this form see 1-17.7J The proponent agency is TRADOC</small>					
SQD <u>1</u> PLT <u>2</u> CO _____	May be used for all types of direct fire weapons.				 MAGNETIC NORTH
<b>DATA SECTION</b>					
POSITION IDENTIFICATION <u>PRIMARY</u>				DATE <u>3 MAR 90 / 1140 HRS</u>	
WEAPON <u>ITV E-21</u>			EACH CIRCLE EQUALS <u>400</u> METERS		
NO.	DIRECTION/ DEFLECTION	ELEVATION	RANGE	AMMO	DESCRIPTION
L	350°		2000M	TOW2	FARM HOUSE
R	105°		2600M	TOW2	R/SIDE WOODLINE
1	360°		3200M	TOW2	RP- HILLTOP
2	351°		2700 M	TOW2	TRP- A8002 RJ
3	04°		1800M	TOW2	TRP- A8003 RJ
REMARKS: <u>4 WRP- RJ AT LN 13629411, 100° AT 320M</u>					

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**Figure 1-33. Example of a Completed Range Card.**

- (2) Date. The date and the time that the range card was completed should be noted. Range cards are like fighting positions. They are constantly being updated. The date and the time help commanders determine what data are current.
- (3) Weapon. In the weapon block, the type of the TOW-mounted vehicle and the vehicle bumper number should be noted.

(4) Distance (in Meters). Each circle equals a particular number of meters (to be determined). The distance between the circles should be entered in meters.

(5) Number (NO.). Starting with the left and the right limits, TRPs and reference points (RPs) should be listed in numerical order.

NOTE: Based upon SOP and mission, enemy, terrain, troops, and time available (METT-T) factors, leaders from the light, airborne, or air assault antiarmor platoons may designate a type of target (vehicle) to be dedicated to TOWs, MK 19s, or .50-caliber machine guns.

(6) Direction/Deflection. The direction (in degrees) is read from a lensatic compass. In the M966 HMMWV, the most accurate technique is for the gunner to aim at the terrain feature while the driver dismounts, aligns himself with the launch tube and terrain feature, and measures the azimuth. Within the Improved TOW Vehicle (ITV), the gunner can use the turret azimuth indicator to measure the azimuth to the target.

(7) Elevation. The TOW system has no elevation indicator but can elevate to 30 degrees above and 20 degrees below the horizontal plane.

(8) Range. The range (distance) in meters from the vehicle position to the left and right limits, TRPs, and reference points (RPs) should be noted.

(a) Ammunition. The types of ammunition used should be noted.

(b) Description. The name of the object--for example, farmhouse, wood line, hilltop--should be noted.

(c) Remarks. The weapon RP data should be entered. These data include at least the following:

- A description of the type of weapon RP.
- The magnetic azimuth.
- A six-digit or an eight-digit grid coordinate for the weapon.
- The distance from the weapon RP to the vehicle position.

f. Marginal Information. Complete the marginal information at the top of the card.

(1) Unit Description. This refers to squad, platoon, and company. Units to the company level should be included.

(2) Magnetic North. The range card should be oriented with the terrain and the direction of the magnetic north arrow.

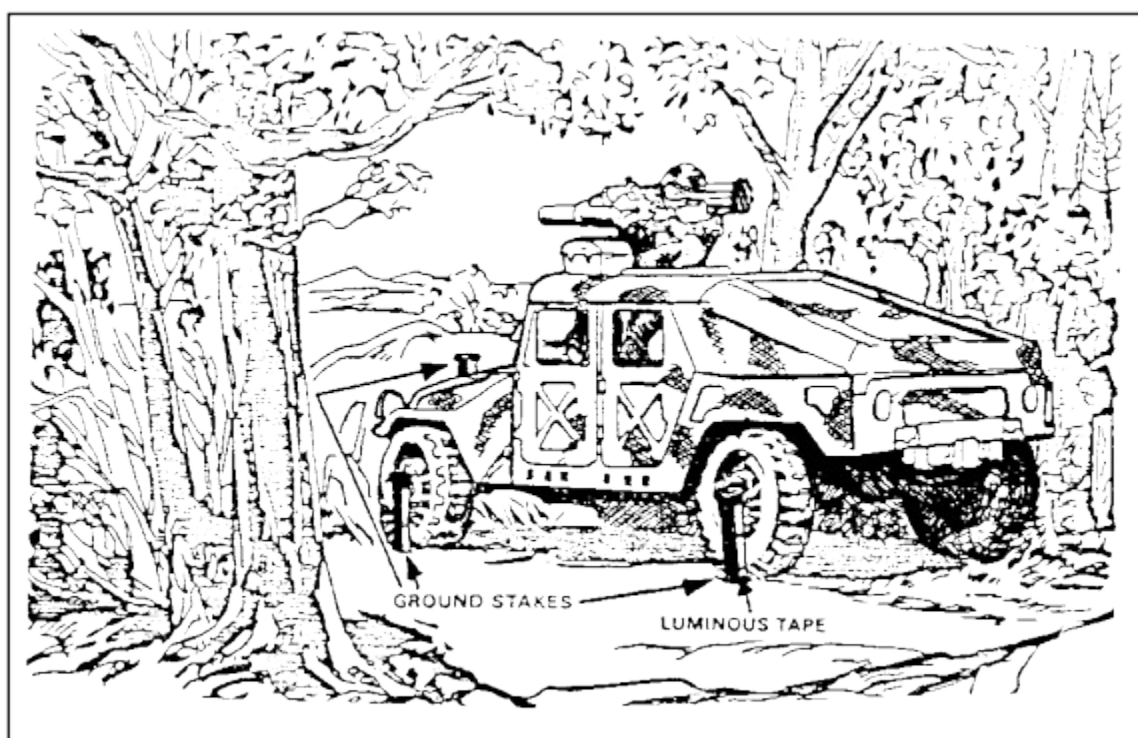
### 3. Stake the Position.

After a range card has been completed, ensure that the actual firing position is marked with ground stakes. This enables either the original or the relief squad to occupy the firing position and to use the

data from the range card for the position. Three stakes are needed to mark the position, as shown in [Figure 1-34](#).

a. Placing the Stakes. One stake is placed in front of and centered on the vehicle. It should be long enough that the driver can see it while he moves the vehicle into position. The other two stakes are placed parallel to the left side of the vehicle and is lined up with the hubs on the front and the rear wheels. The stakes are placed close to the vehicle with enough clearance to allow a driver to move into the position without knocking them down. The stakes are driven firmly into the ground. Engineer tape, luminous tape, or chemical lights can be placed on the friendly side of the stakes to make them easier to see during limited visibility.

b. Reoccupying a Position. To reoccupy a position, the driver aligns his vehicle on the front stake and moves forward slowly until the two stakes on the left of his vehicle are centered on the front and rear hubs. Units equipped with Improved TOW Vehicles (ITVs) use the azimuth indicator on the ITV for positioning stakes and reoccupying positions (see [FM 23-34](#)).



**Figure 1-34. Staking the Position.**

## Lesson 1

### Practice Exercise

**Instructions** The following items will test your understanding of the material covered in this lesson. There is only one correct answer for each item. When you have completed the exercise, check your answers with the answer key that follows. If you answer any item incorrectly, review that part of the lesson which contains the portion involved.

---

Situation: You are inspecting the camouflage of a dismounted TOW firing position. Use this situation to answer question 1.

1. To prevent the backblast of the weapon from leaving a signature, you ensure that the ground behind the TOW is free of leaves and dirt to a distance of about how many meters?
  - ☐ A. 15.
  - ☐ B. 25.
  - ☐ C. 35.
  - ☐ D. 50.

Situation: You are supervising the preparation of a hunter-killer firing position. Use this situation to answer question 2.

2. Since the position will be occupied only until the ambush is executed, you direct the TOW squad to
  - ☐ A. create a large position.
  - ☐ B. create a small position just large enough to conceal the system and the crew.
  - ☐ C. use overhead cover.
  - ☐ D. avoid such terrain features as folds in the ground.

Situation: You are a section leader issuing a fire command. Use this situation to answer questions 3 and 4.

3. Your gunner is NOT faced with several targets. Therefore, you omit which of the following elements from your fire command?
  - ☐ A. ALERT.
  - ☐ B. TARGET IDENTIFICATION/TARGET LOCATION.
  - ☐ C. METHOD OF ENGAGEMENT.
  - ☐ D. EXECUTION.

4. To allow yourself to maintain the element of surprise and permit the massing of fires, you use which of the following execution commands?
- ☐ A. FIRE.
  - ☐ B. AT MY COMMAND, FIRE.
  - ☐ C. CEASE TRACKING.
  - ☐ D. CEASE TRACRING, OUT OF ACTION.

Situation: You are a platoon leader. You instruct your TOW sections that you want "both sections to engage only tanks when the enemy reaches PL Silver. Then I want Section 1 to begin engaging BMPs and any command vehicles identified." Use this situation to answer question 5.

5. You are using which of the fire control measures?
- ☐ A. Sectors of fire.
  - ☐ B. Fire commands.
  - ☐ C. Engagement areas.
  - ☐ D. Phase lines.

Situation: You are a TOW squad leader inspecting the range card that your gunner has prepared to ensure that the card is correct and complete. A hilltop, at a distance of 1,658 meters, is the farthest terrain feature from the firing position. Use this situation and Figure 1-35 to answer question 6.

6. The gunner indicates on the range card that the circle value is 350 meters. You advise him that the correct circle value is how many meters?
- ☐ A. 140.
  - ☐ B. 240.
  - ☐ C. 340.
  - ☐ D. 440.

Situation: You are supervising your squad members as they stake the firing position. Use this situation to answer question 7.

7. You instruct the crew members to place two of the stakes parallel to the left side of the vehicle and line them up with the hubs on the front and the rear wheels. You instruct them to place the third stake
- ☐ A. in front of and centered on the vehicle.
  - ☐ B. behind and centered on the vehicle.
  - ☐ C. to the right side of and centered on the vehicle.
  - ☐ D. between the firing position at a 45-degree angle to the right flank of the vehicle.

<b>STANDARD RANGE CARD</b> <small>For use of this form see FM 7-7J. The proponent agency is TRADOC.</small>					
SQD _____ PLT _____ CO _____	May be used for all types of direct fire weapons.				MAGNETIC NORTH
<b>DATA SECTION</b>					
POSITION IDENTIFICATION				DATE	
WEAPON			EACH CIRCLE EQUALS _____ METERS		
NO.	DIRECTION/ DEFLECTION	ELEVATION	RANGE	AMMO	DESCRIPTION
REMARKS:					

DA FORM 5517-R, FEB 86

**Figure 1-35. Range Card.**

# Practice Exercise

## Answer Key and Feedback

---

Situation: You are inspecting the camouflage of a dismounted TOW firing position. Use this situation to answer question 1.

1. To prevent the backblast of the weapon from leaving a signature, you ensure that the ground behind the TOW is free of leaves and dirt to a distance of about how many meters?
  - A. 15.
  - B. 25.
  - C. 35.
  - D. 50.

Situation: You are supervising the preparation of a hunter-killer firing position. Use this situation to answer question 2.

2. Since the position will be occupied only until the ambush is executed, you direct the TOW squad to
  - A. create a large position.
  - B. create a small position just large enough to conceal the system and the crew.
  - C. use overhead cover.
  - D. avoid such terrain features as folds in the ground.

Situation: You are a section leader issuing a fire command. Use this situation to answer questions 3 and 4.

3. Your gunner is NOT faced with several targets. Therefore, you omit which of the following elements from your fire command?
  - A. ALERT.
  - B. TARGET IDENTIFICATION/TARGET LOCATION.
  - C. METHOD OF ENGAGEMENT.
  - D. EXECUTION.
4. To allow yourself to maintain the element of surprise and permit the massing of fires, you use which of the following execution commands?
  - A. FIRE.
  - B. AT MY COMMAND, FIRE.
  - C. CEASE TRACKING.
  - D. CEASE TRACKING, OUT OF ACTION.



Situation: You are a platoon leader. You instruct your TOW sections that you want "both sections to engage only tanks when the enemy reaches PL Silver. Then I want Section 1 to begin engaging BMPs and any command vehicles identified." Use this situation to answer question 5.

5. You are using which of the fire control measures?

- A. Sectors of fire.
- B. Fire commands.
- C. Engagement areas.
- D. Phase lines.

Situation: You are a TOW squad leader inspecting the range card that your gunner has prepared to ensure that the card is correct and complete. A hilltop, at a distance of 1,658 meters, is the farthest terrain feature from the firing position. Use this situation and Figure 1-35 to answer question 6.

6. The gunner indicates on the range card that the circle value is 350 meters. You advise him that the correct circle value is how many meters?

- A. 140.
- B. 240.
- C. 340.
- D. 440.

Situation: You are supervising your squad members as they stake the firing position. Use this situation to answer question 7.

7. You instruct the crew members to place two of the stakes parallel to the left side of the vehicle and line them up with the hubs on the front and the rear wheels. You instruct them to place the third stake

- A. in front of and centered on the vehicle.
- B. behind and centered on the vehicle.
- C. to the right side of and centered on the vehicle.
- D. between the firing position at a 45-degree angle to the right flank of the vehicle.

<b>STANDARD RANGE CARD</b> <small>For use of this form see FM 7-7J. The proponent agency is TRADOC.</small>					
SQD _____ PLT _____ CO _____	May be used for all types of direct fire weapons.				MAGNETIC NORTH
<b>DATA SECTION</b>					
POSITION IDENTIFICATION				DATE	
WEAPON			EACH CIRCLE EQUALS _____ METERS		
NO.	DIRECTION/ DEFLECTION	ELEVATION	RANGE	AMMO	DESCRIPTION
REMARKS:					

DA FORM 5517-R, FEB 86

**Figure 1-35. Range Card.**

## LESSON TWO

# MOVE THE TOW AND ENGAGE THE ENEMY

MOS Manual Tasks:

071-316-2556 - Determine the method of movement (TOW)

071-316-2651 - Recommend employment of TOWs

071-316-2801 - Consolidate and reorganize a TOW section following enemy contact

071-501-1010 - Recover a tracked vehicle using field expedients

## OVERVIEW

### TASK DESCRIPTION:

In this lesson, you will learn to determine the method of movement (TOW); to recommend employment of TOWs; to consolidate and reorganize a TOW section following enemy contact; and to recover a tracked vehicle using field expedients.

### LEARNING OBJECTIVE:

**TASKS:** Identify the procedures for moving the TOW and engaging the enemy.

**CONDITIONS:** You will be given information from [FM 7-91](#) and STP 7-11H24-SM.

**STANDARDS:** Moving the TOW and engaging the enemy will be in accordance with [FM 7-91](#) and STP 7-11H24-SM.

**REFERENCES:** The material contained in this lesson was derived from the following publications; [FM 7-91](#) and STP 7-11H24-SM.

## INTRODUCTION

In combat, it is necessary to move the TOW launcher system from one firing position to another or from one area to another. The TOW may be used to engage the enemy in several ways. In addition, it is necessary to consolidate and reorganize TOW sections following the engagement of the enemy, and it may be necessary to recover bellied or overturned TOW vehicles using field expedients. Lesson Two of this subcourse provides instruction in each of these areas.

## PART A - DETERMINE METHOD OF MOVEMENT (TOW)

### 1. Battlefield Movement.

The movement of units on the battlefield is an essential part of all combat operations. Tactical movements are conducted using techniques consistent with the requirement for speed, enemy situation,

terrain, and visibility. Tactical road marches, a form of tactical movement, are conducted in division and corps rear areas to rapidly relocate units when the probability of enemy contact is remote and security requirements are minimal. Paragraphs 2 and 3 of this part of the lesson discuss how Anti-armor platoons move on the battlefield when enemy contact is likely and security is required. These paragraphs include a discussion of maneuver once enemy contact is made.

## 2. Movement Fundamentals.

Whether moving when not in contact or after enemy contact is made, the platoon must reduce exposure to observation and fires. Skillful use of terrain, avoidance of possible kill zones, and use of measures to counter enemy observation and fires are basic to effective movement.

a. Use Terrain for Protection. Terrain offers cover and concealment from observation and fires. Moving platoons must make maximum use of cover and concealment to accomplish this mission. Terrain-driving techniques can help units take advantage of the terrain over which they must move. These techniques include the following:

- Use cover and concealment.
- Avoid skylining.
- Do not move directly forward from a defilade firing position.
- Cross open areas quickly.

b. Avoid Possible Kill Zones. The platoon must avoid large, open areas; mainly those dominated by high ground or by terrain that afford cover and concealment. These are likely enemy kill zones. The enemy will try to incorporate those areas into his defensive scheme of action to capitalize on the long-range fields of fire of his antitank guided missiles and other direct-fire weapons. If likely kill zones must be crossed, then cross them rapidly. Use countermeasures to suppress likely and suspected enemy positions.

c. Use Countermeasures. Common countermeasures are suppressive fire, smoke, and camouflage.

(1) Suppressive Fire. Suppressive fire can be provided by direct-fire or indirect-fire weapons systems. It is used to degrade the enemy's ability to acquire and engage targets, which may cause enemy casualties. Direct-fire weapons systems are inherently more accurate, lethal, and responsive than indirect-fire weapons systems. However, indirect-fire weapons systems are usually more effective for suppression. This is because they can engage targets behind masking terrain (high-angle fire) and they have greater range and more effective munitions (DPICM, smoke, and high explosive).

(2) Smoke. Smoke to aid movement may be delivered by artillery or by the maneuver battalion's organic mortars, smoke pots, smoke generators, or vehicular-mounted launchers. Smoke is used to obscure and degrade the enemy's vision within and beyond his location or to screen the friendly force. With thermal sights, the platoon may still engage identified point targets through this smoke. Smoke to screen is employed on the

friendly force or between it and the enemy. It is also used to degrade enemy ground and aerial observation and point fires.

(3) Camouflage. Properly selected and applied, camouflage blends vehicles and troops with the surrounding area. It complicates the enemy's target detection effort, especially from longer ranges. Because of the wide use of night vision aids, camouflage is equally important at night. It will not, however, totally guard against detection by thermal imagery devices.

### 3. Movement When Not in Contact.

Maneuver companies and battalions move on the battlefield using the movement techniques of traveling, traveling overwatch, and bounding overwatch. These techniques are selected based upon expected enemy contact, as shown in [Figure 2-1](#).

<u>Likelihood of Contact</u>	<u>Movement Technique</u>
1. Not likely	Traveling
2. Probable	Traveling overwatch
3. Expected	Bounding overwatch

**Figure 2-1. Selection of Movement Techniques.**

Traveling provides the greatest speed. Bounding overwatch provides the highest readiness before contact. All three movement techniques allow the moving unit to make initial contact with its smallest force. The unit commander determines the technique to use based upon his expectation of enemy contact and the requirement for speed (based upon the mission, the time available, the terrain, and visibility). In each of the three movement techniques, the anti-armor unit leader uses a combination of checkpoints, phase lines, and time limits to trigger the movement of his anti-armor elements.

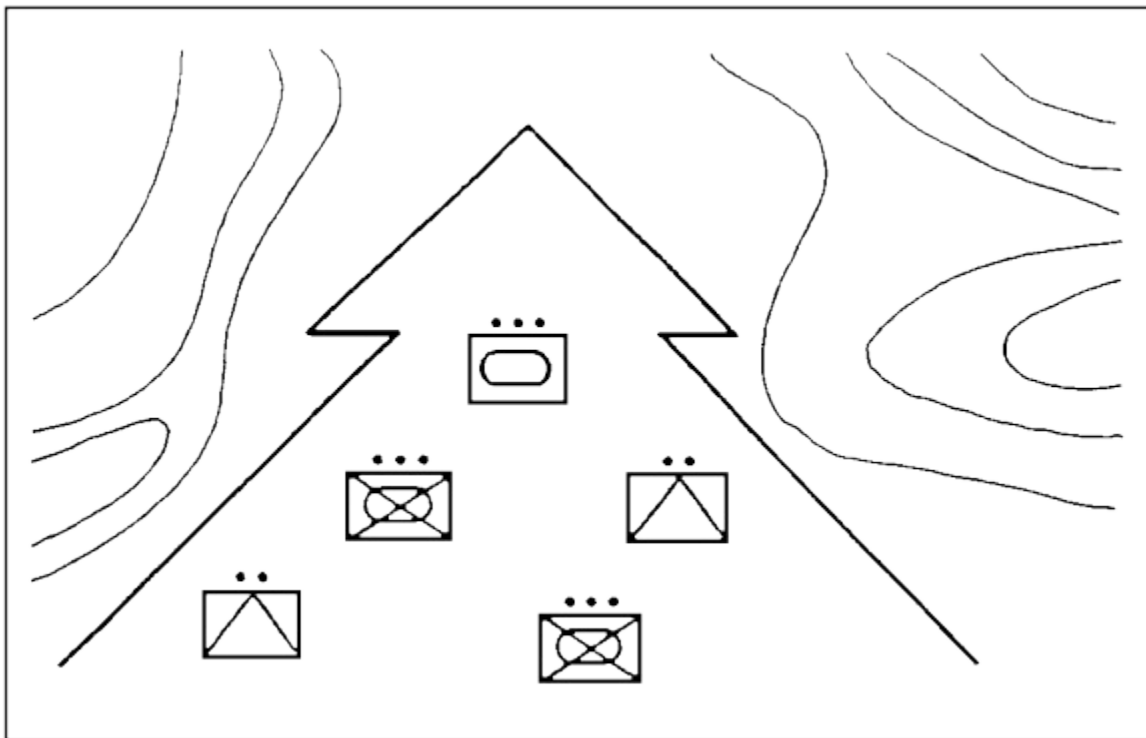
a. Support Role. Because of their vulnerability while moving (limited armor protection and no capability to fire the TOW on the move), TOW platoons do not lead. In any of the three movement techniques, anti-armor platoons are best when positioned to perform as the overwatch element. This reduces the chance that an anti-armor platoon will make initial enemy contact. Because of this, an anti-armor platoon gears its movement to provide continuous coverage for the supported unit rather than covering its own movement. Whether supporting a mounted or a dismounted force, the anti-armor platoon leaders must anticipate how to best support the move, considering the terrain and the movement technique being used.

(1) Traveling. The traveling technique (shown in [Figure 2-2](#)) is used when enemy contact is not likely and speed is important. The lead and the trail elements of a unit using the traveling technique move at the same time but are dispersed for security. Terrain or other restrictions may force closing up.

However, when conditions permit, lateral dispersion is resumed. A traveling unit organizes to facilitate a rapid transition to a more secure movement technique (traveling overwatch or bounding overwatch) or maneuver, in case of unexpected enemy contact. The location of an anti-armor platoon in a battalion using the traveling technique and the command relationships established are based upon the commander's knowledge of the enemy and the terrain and his plan of action once contact is made.

(a) Anticipated Enemy Contact. If the battalion commander anticipates contact with an armor threat before he reaches his objective and terrain and visibility allow the use of the TOW, one or more anti-armor sections or one anti-armor platoon may be attached or placed under operational control (OPCON) of the lead company. This provides the lead company with a dedicated anti-armor element in overwatch.

(b) Use of Combat Column Formation for Traveling Overwatch. Companies using traveling overwatch normally move in a combat column formation. Platoons are staggered laterally with 50 to 100 meters between vehicles (mounted) or 20 to 50 meters between platoons (dismounted). Trail platoons may move on parallel routes to shorten the column and reaction time. These distances may be increased or decreased, depending upon terrain and visibility.



**Figure 2-2. Traveling Technique.**

(c) Dispersion of Remaining Anti-armor Sections or Platoons. Remaining anti-armor sections or platoons may be dispersed among the trailing elements of the battalion or they may move as a single element within the battalion column. By retaining the anti-armor company (minus) or platoon (minus) under his control,

the battalion commander has an anti-armor force with which to rapidly respond to events.

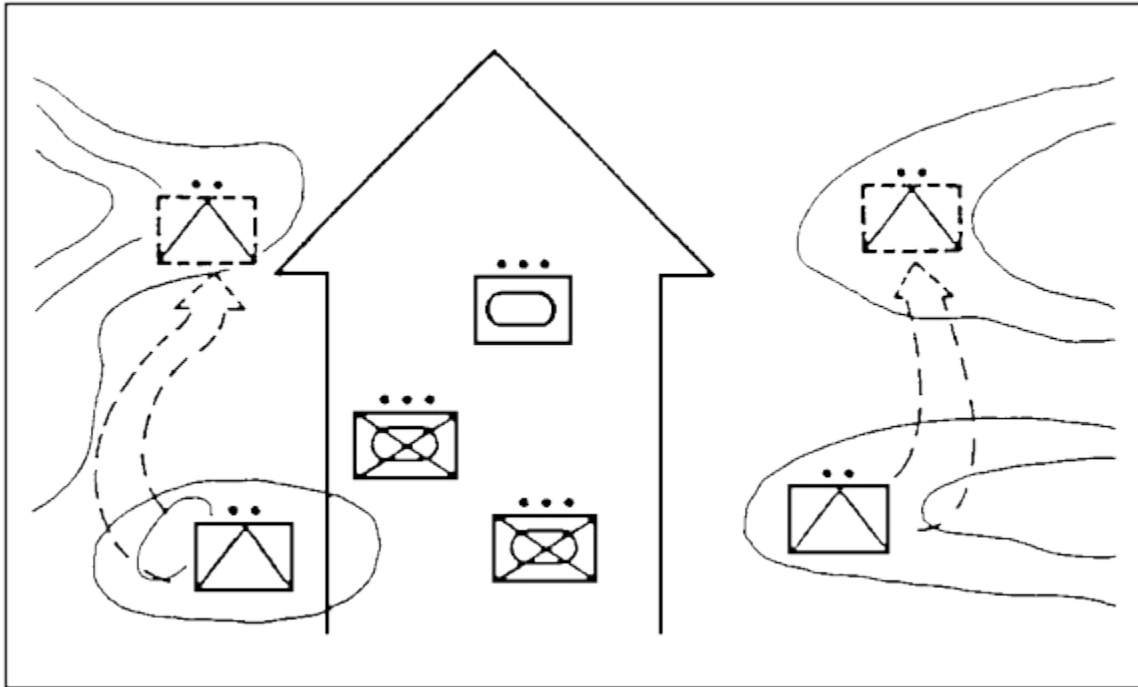
(2) Traveling Overwatch. The traveling overwatch technique is used when enemy contact is possible. Thus, greater readiness is needed but speed is still important. To achieve this readiness, the distance between the lead and the following elements is increased. This distance is not fixed. The elements following stay far enough behind to avoid fire that is directed at the lead elements but close enough to provide support by maneuver if the lead element makes contact. In this movement technique, the lead element continues to move and the trail element follows with occasional stops to overwatch the movement of the lead element. Considerations for anti-armor platoons moving with companies and battalions using traveling overwatch are similar to those for traveling except that the probability of enemy contact is greater.

(a) Continuous Overwatch. An anti-armor section or platoon moving with the lead company in a battalion, using the traveling overwatch technique, regulates its movement in relation to the movement of the lead position. This provides continuous overwatch on likely enemy positions and armor avenues of approach. Speed will vary and anti-armor sections may occasionally halt in firing positions. Because of the range of the TOW, the anti-armor elements need not immediately follow the lead platoon. Another infantry or tank platoon may be closer to the lead platoon and can provide overwatch fires on any enemy that may appear at closer ranges.

(b) Traveling Overwatch Technique. If there are suitable fields of fire, an anti-armor platoon moving with an infantry company in traveling overwatch may move forward by bounds, as shown in [Figure 2-3](#). In such cases, anti-armor sections bound forward alternately to provide overwatch, taking care not to move so far forward that they can be suppressed by enemy fires directed at the lead platoon. This technique for continuous overwatch is relatively easy to perform for anti-armor platoons that are moving with dismounted infantry over traversable terrain. At faster speeds, with mechanized infantry overwatching, anti-armor elements normally move continuously and occupy firing positions as the situation permits. If elements within the lead company are not bounding, anti-armor elements normally will not bound either.

(c) Movement with Trailing Platoons. In situations in which fields of fire are not suitable for the TOW, the MK 19 on the HMMWV can be used as an antipersonnel and a close-in anti-armor weapon. Anti-armor elements not equipped with the MK 19 or .50-caliber machine gun would move with trailing platoons. Anti-armor elements moving with trailing companies may move as in traveling. They may also be assigned to overwatch avenues of approach that lead into the flanks or the rear of the moving battalion. The battalion commander may retain control of a position of his anti-armor unit, so he can rapidly shift it to threats anticipated or encountered during the move.

(3) Bounding Overwatch. This technique is used when enemy contact is expected. It is the most secure but the slowest of the movement techniques. Part of the moving force, the overwatch element, occupies a covered and concealed position that affords good observation and good fields of fire in the direction of the expected enemy. Another part, the bounding element, covered by the overwatch element, moves forward to a selected position. It secures the position and becomes the overwatch element so that the previous overwatch element becomes the bounding element. The bounding element does not move beyond the range of the weapons in the overwatch element. It also takes care not to mask the fires of the overwatch element.



**Figure 2-3. Traveling Overwatch Technique.**

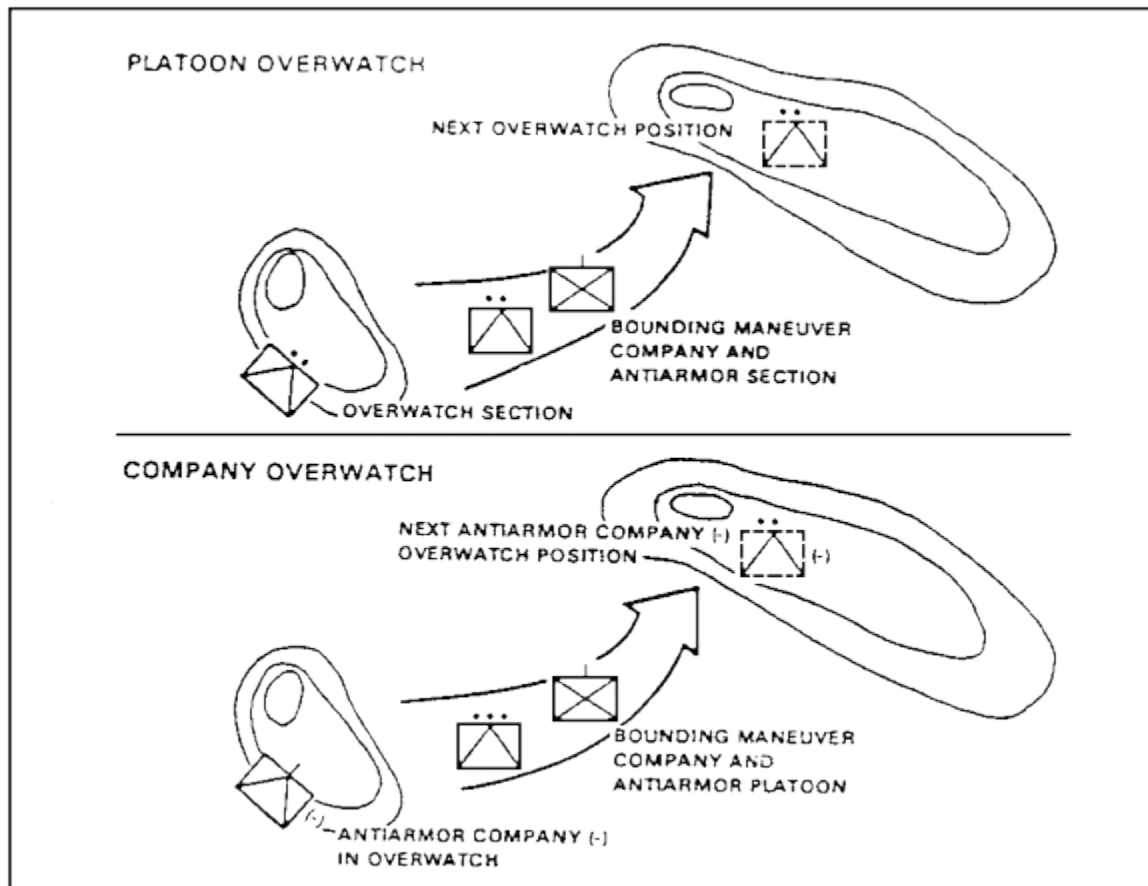
(a) Use By Battalion Units. This technique may be used by all battalion units. A moving battalion may bound with its lead company and move following companies using the traveling overwatch technique or it may use one or more companies to over-watch the movement of the lead company. Overwatch by trailing companies may allow the lead company to move continuously and faster using the traveling overwatch technique. The terrain and visibility, knowledge of the expected enemy, and the requirement for speed determine how this technique is employed. As with previously discussed movement techniques, anti-armor platoons may execute bounding overwatch under battalion control or attached or under OPCON of an infantry company. The anti-armor element is best employed as part of the overwatch.

(b) Orient on Enemy Locations or Avenues of Approach. The infantry company normally executes bounding overwatch by leading with a single platoon and overwatching with the remainder of the company if terrain and visibility permit.



The overwatching platoon with the anti-armor element is positioned to provide immediate supporting fire if the bounding element makes contact. The anti-armor platoon orients on suspected enemy locations and avenues of approach. They do not orient on the bounding element.

Other direct-fire weapons orient on likely or suspected enemy locations at closer ranges. Indirect-fire weapons are prepared to deliver suppressive fires on planned targets or in response to requests for immediate suppression on unplanned targets. [Figure 2-4](#) shows bounding overwatch within a moving infantry company.



**Figure 2-4. Bounding Overwatch Technique.**

(c) TOW Overwatch Role. An important consideration when establishing the overwatch is that the TOW is not a suppressive or volume fire weapon. However, it does provide long-range, accurate fire on point targets and complements a mix of other direct-fire and indirect-fire weapons in the overwatch role. The MK 19 and the .50-caliber machine gun provide the necessary mix for suppressive or volume fire. The 40-mm grenade has a high trajectory when launched from the MK 19. It can be used to cover dead space that normally could not be reached. The MK 19 and the .50-caliber machine gun may be used to cover the disengagement of the TOWs. Specific tasks for the overwatch element include the following:

- Place fires on suspected enemy positions that could engage the bounding element out to and beyond the next overwatch position.
- Maneuver in support of the bounding force.
- Call for and adjust indirect fires.
- Maintain direct communication with the bounding force.

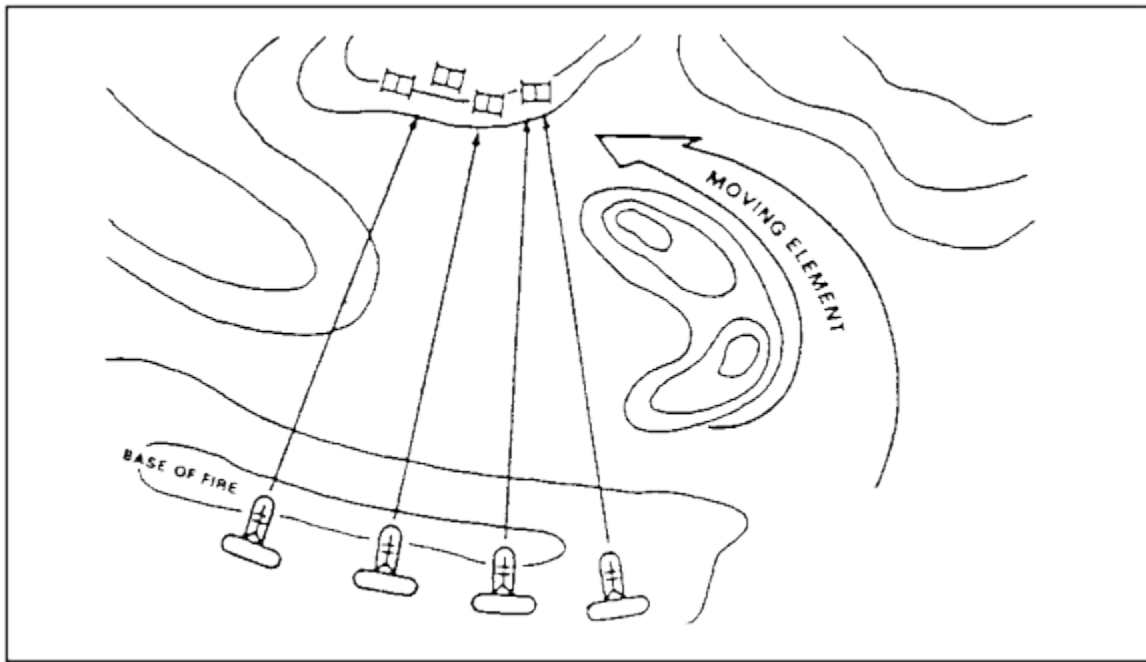
(d) Commander's Instructions. Since a company conducting bounding overwatch expects to make contact on each bound, the commander ensures that leaders of both overwatching and bounding elements understand what is to be done before each bound begins. Checkpoints, phase lines, other control measures, and SOPs are used to reduce the length of orders and use of the radio. The commander's instructions include the following;

- Location of or direction to the enemy.
- Size and type of enemy force (if known).
- Position of the overwatch element.
- Location of the next overwatch position.
- Route to be used by the bounding element.
- What the bounding element will do when it arrives at the next overwatch position.
- Actions on contact.
- How and where the next order will be given.

#### 4. Maneuver.

Once enemy contact has been made and fires are initiated, tactical movement becomes maneuver. Maneuver is the employment of forces through movement supported by fire to achieve a position of advantage from which to destroy the enemy. It is an immediate change from and an extension of the movement techniques already discussed.

a. Support-By-Fire and Moving Elements. Maneuver involves the actions of two elements: a support-by-fire element and a moving element, as shown in [Figure 2-5](#). The support-by-fire element covers the moving force by firing at the enemy. The moving element moves forward to close with the enemy or to reach a better position from which to fire. Depending upon the distance to the enemy and the amount of cover and concealment available, the support-by-fire element and the moving element may switch roles, as needed, to continue maneuvering. Before the moving element advances beyond the supporting range of the support-by-fire element, it takes a position from which it can fire on the enemy and allows the support-by-fire elements to move. Maneuver can be conducted mounted or dismounted and at any organizational level.



**Figure 2-5. Maneuver.**

b. Participation of Anti-armor Platoons. Anti-armor platoons participate in maneuver with companies and battalions. They may be part of the support-by-fire element or the moving element. When part of the moving element, the anti-armor platoon moves to gain better firing positions. It does so under the protection of leading infantry or tanks. Anti-armor sections and platoons add their fires to the assault, but they do not close with the enemy. Anti-armor elements are not assault units.

c. Engagement of Point Targets at Long Range. As part of the base of fire, anti-armor elements engage long-range point targets, such as enemy tanks, that are in prepared positions. Tanks and other infantry direct-fire weapons engage point and area targets at closer ranges. These weapons, along with supporting indirect fires, add volume to the base of fire.

#### 5. Control TOW Section Movements.

TOW sections normally move in coordination with other forces, either within the march column or as part of a force in an overwatch position. When used in an overwatch role, the TOW section covers the movement of the bounding element of the force and moves with the overwatching force. When moving forward or rearward between overwatch positions, the section is normally covered by another TOW section or tanks. TOW squads within a section may cover the movement of each other between overwatch positions when other TOWs or tanks are not available.

NOTE: The distance between overwatching positions is influenced by the terrain, but the distance should not exceed 1,000 meters. Therefore, the overwatch can engage 2,000 meters beyond the bounding element. REMEMBER--STANDOFF RANGE.

- a. Forward Movement. Each section moves forward by squads within the sections.
- b. Rearward Movement. Each section moves rearward by section.

c. TOW Sections Move with Tanks. Often, TOWs work with tanks. The tank is an assault weapon. The TOW is not an assault weapon. Tanks, because of their better crew protection, more rapid rate of fire, greater mobility, and larger loads of ammunition, normally engage enemy armor at closer ranges. TOWs support tank movement from overwatch positions behind them (or to the flanks) and engage targets at longer ranges.

NOTE: When displacing to the rear, TOWs move back first, covered by the tanks. Once the TOWs are in firing positions from which they can cover the movement of the tanks, the tanks displace to new positions.

## 6. Use Terrain Properly (Terrain Driving).

Use the guidelines in this paragraph to ensure that terrain is used properly.

a. Practice Terrain Driving. No matter which technique of movement is used (traveling or bounding), terrain driving should always be practiced. It is essential when contact is possible or expected. Squad and section leaders should give the driver specific instructions as to the route that provides the best cover and concealment.

b. Follow Rules. Follow terrain driving rules to reduce exposure to effective enemy fire.

(1) Use all available cover and concealment.

(2) Never skyline.

(3) Do not move directly forward from a defilade position.

(4) Quickly cross open areas.

NOTE: The TOW launch tube and tracker can be kept in the ready-to-fire position for short moves. However, for extended moves over rough terrain or during formation movement, the TOW should be kept inside the vehicle to prevent damage or recognition by enemy observation posts (OPs).

c. Use Terrain for Cover and Concealment. When moving between overwatch positions, protect the TOW section by using the terrain to cover and conceal its movement.

d. Use Smoke and Suppressive Fire. When terrain between overwatch positions does not conceal movement, smoke and suppressive fire by artillery and automatic weapons is placed on known or likely enemy positions while TOW sections quickly move between positions.

## **PART B - RECOMMEND EMPLOYMENT OF TOWs**

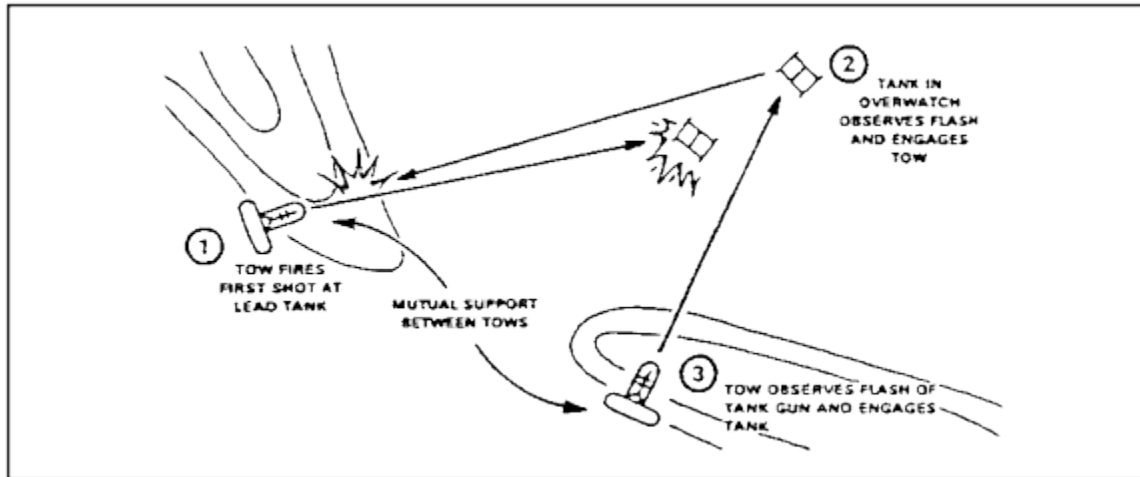
### 1. General.

Following the basic rules of anti-armor unit employment increases the probability of destroying targets and enhances the survivability of the anti-armor elements. These basic rules are discussed in this Part B.

## 2. Mutual Support.

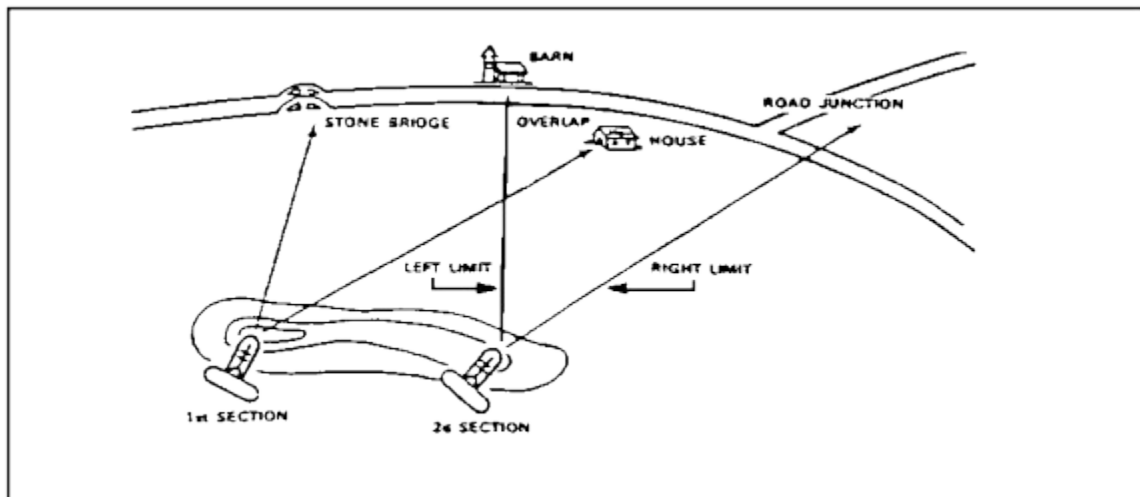
Anti-armor units support each other due to their assigned tasks, their relative positions (with respect to each other and to the enemy), and their inherent capabilities. Mutual support is established when tows are employed by section, and sectors of fire are overlapped between sections.

a. Employing by Section. The employment of TOWs by section establishes mutual support between two squads, as shown in [Figure 2-6](#). If one squad is attacked or forced to displace, the other can continue to cover the assigned sector. To achieve this, the squads are positioned so that the fires directed at one squad suppress only that squad.



**Figure 2-6. Employment by Section.**

b. Overlapping Sectors of Fire. Overlapping sectors of fire (shown in [Figure 2-7](#)) are vital to mutual support. Primary, alternate, or secondary sectors of fire are used.



**Figure 2-7. Overlapping Sectors of Fire.**

## 3. Security.

Anti-armor units can be attacked by dismounted enemy infantry. Anti-armor units should be positioned near friendly infantry units for protection. Anti-armor squads need not be in the same place as the

infantry, but the infantry should be able to cover dismounted avenues of approach to the anti-armor positions. When moving with infantry, anti-armor units provide their own local security.

#### 4. Flank Shot Engagements.

Anti-armor squads and sections must be positioned to engage tanks from the flank. Flank shots at enemy tanks are more desirable than frontal shots for the following reasons:

- a. Armor Protection. A tank has its greatest armor protection in the front.
- b. Front Orientation. A tank is set up to orient to the front. Its laser range finder, firepower, vision ports, and crew are all directed to the front.
- c. Likelihood of Detection. A tank engaged from the front is less likely to be killed and more likely to detect and suppress the attacking anti-armor units.
- d. Vulnerability. A tank is more vulnerable and creates a larger target from the flank.

#### 5. Massed Fires.

Mass is achieved by concentrating the effects of combat power at the decisive place and time to gain favorable results against the enemy. The anti-armor unit achieves mass through mutual fire support, detailed fire control, and fire distribution measures synchronized with the combat elements of the supported unit.

#### 6. Standoff.

The perception of standoff to mean "engage armor vehicles beyond 2,000 meters to the maximum range (3,750 meters)" is not always tactically feasible for the following reasons:

- a. Extra Tracking Time. The extra tracking time beyond 2,000 meters increases the likelihood of gunner error and gives the enemy more reaction time to maneuver against the friendly position if he is engaged by frontal shots.
- b. Reduced Hit Probability. The probability of a hit at an extended range is reduced, especially through thermal sights or any form of obscuration.
- c. Reduced Flank-Shot Hit Probability. Ranges beyond 2,000 meters decrease the probability of flank-shot hits due to extended tracking time, speed of enemy vehicles, and terrain restrictions.

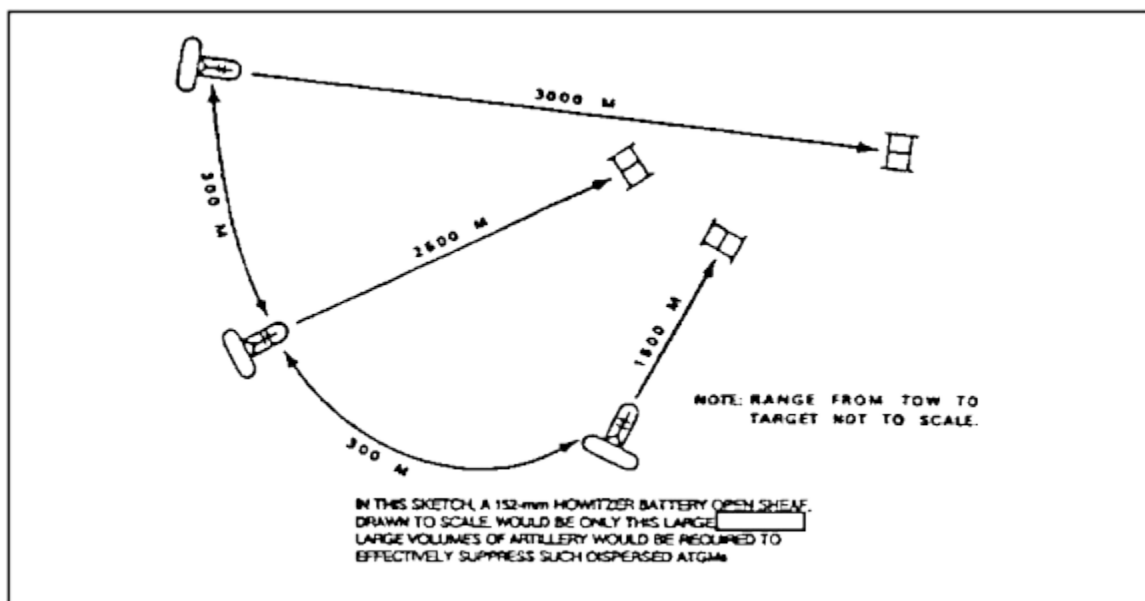
NOTES:           The T-64B and the T-80 Soviet main battle tanks can fire antitank guided missiles (ATGM) through their main gun tubes. These missiles have ranges up to 4,000 meters, which negate the standoff. Threat armored vehicles can fire high explosives (HE) to suppress TOW gunners at ranges greater than 2,000 meters.

#### 7. Cover and Concealment.

Cover and concealment is critical to the survival of anti-armor weapon systems. Except in the Improved TOW Vehicle (ITV), the TOW system has several inherent weaknesses during tracking.

- Long flight time.
- Slow rate of fire.
- Distinctive signature.
- Exposure of the gunner, except ITVs.

The effects of these weaknesses can be reduced through cover and concealment. Leaders should look for terrain that affords good cover and concealment. Conspicuous terrain features, such as lone buildings or trees, hilltops, and other obvious positions, should be avoided. To further reduce the vulnerability to enemy fire, anti-armor weapons should be dispersed laterally and in depth so that no two weapons can be suppressed at the same time by a single weapon. If possible, anti-armor squads should be at least 300 meters apart, as shown in [Figure 2-8](#).



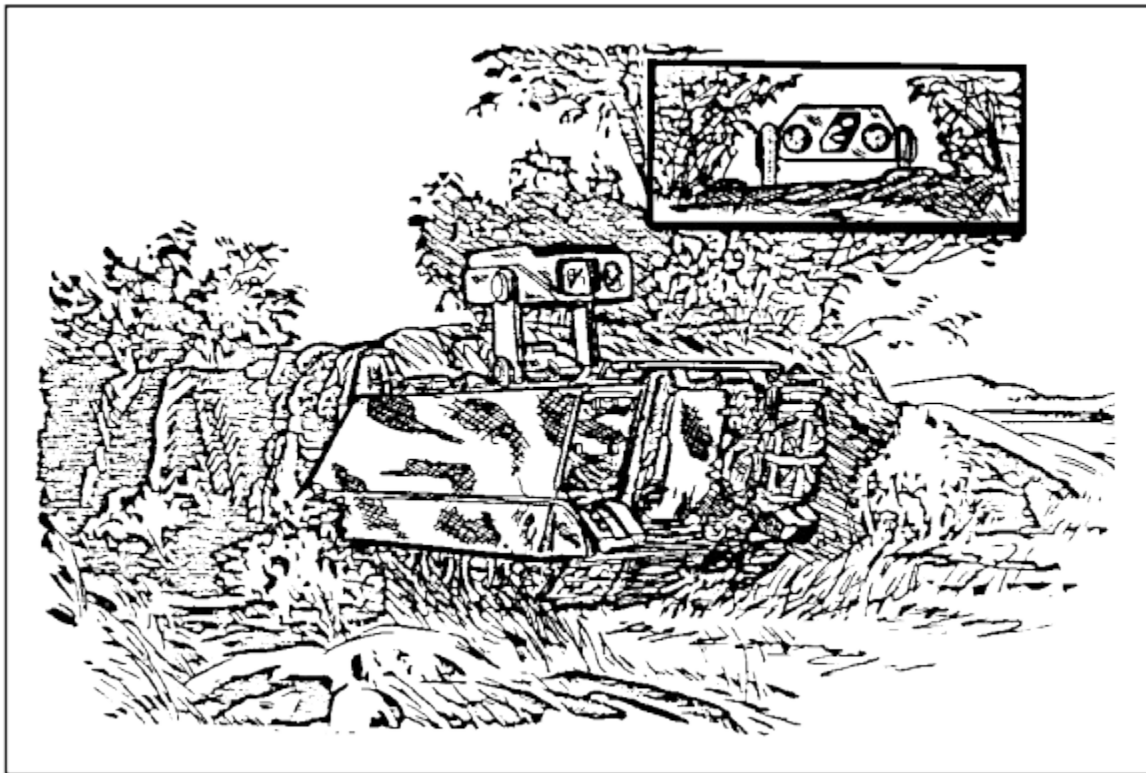
**Figure 2-8. Dispersion Between Squads.**

This minimizes the casualties and equipment damage that could result from an artillery barrage. These aspects of cover and concealment also apply to movement and to the selection of routes.

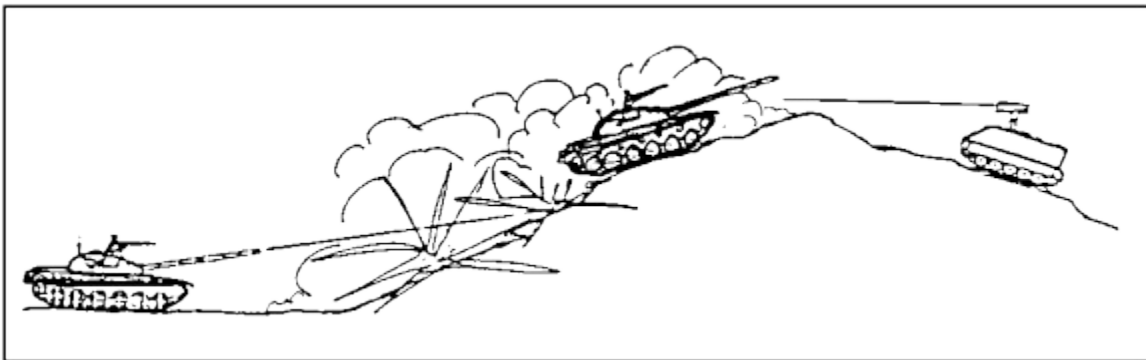
a. Cover (Natural and Man-Made. Cover is protection from the fire of enemy weapons and from enemy observation, as shown in [Figures 2-9](#) and [2-10](#). It may be natural or man-made.

(1) Natural Cover. Natural cover includes reverse slopes, ravines, and hollows.

(2) Man-Made Cover. Man-made cover includes fighting positions, walls, rubble, and craters.



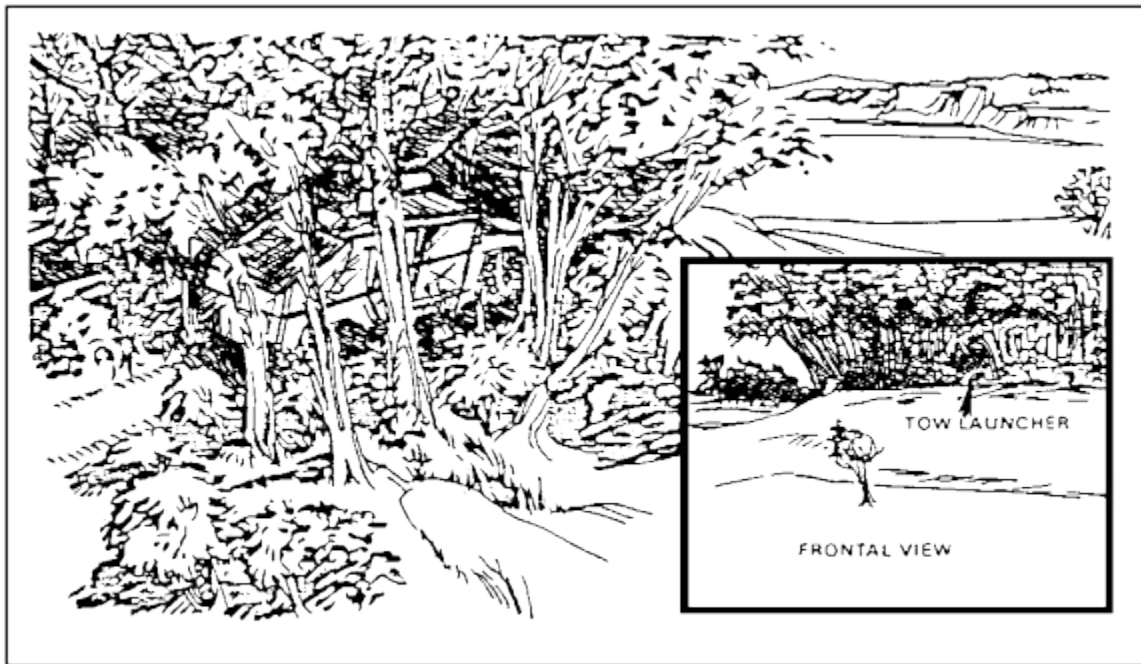
**Figure 2-9. Cover.**



**Figure 2-10. Reverse Slope.**

b. Concealment. Concealment (as shown in [Figure 2-11](#)) is protection from observation. It is anything that hides a soldier, a unit, or a position from ground and aerial observers and gunners. It includes not only camouflage, light, noise, movement, and odor discipline. Night vision devices and other detection devices penetrate darkness and prevent it from providing sufficient concealment. Leaders must choose inconspicuous positions that do not skyline TOW launchers.





**Figure 2-11. Concealment.**

#### 8. Employment in Depth

Anti-armor fire should be employed in depth.

- a. Offense. In the offense, routes and firing positions should be selected to support the forward movement of attacking units.
- b. Defense. In the defense, anti-armor squads may be either forward initially and moved to in-depth positions as the enemy closes or they may be positioned initially in depth.

#### 9. Employment as Part of a Combined Arms Team

The skillful integration of infantry, engineer, and indirect-fire assets greatly improves the survivability and lethality of anti-armor units.

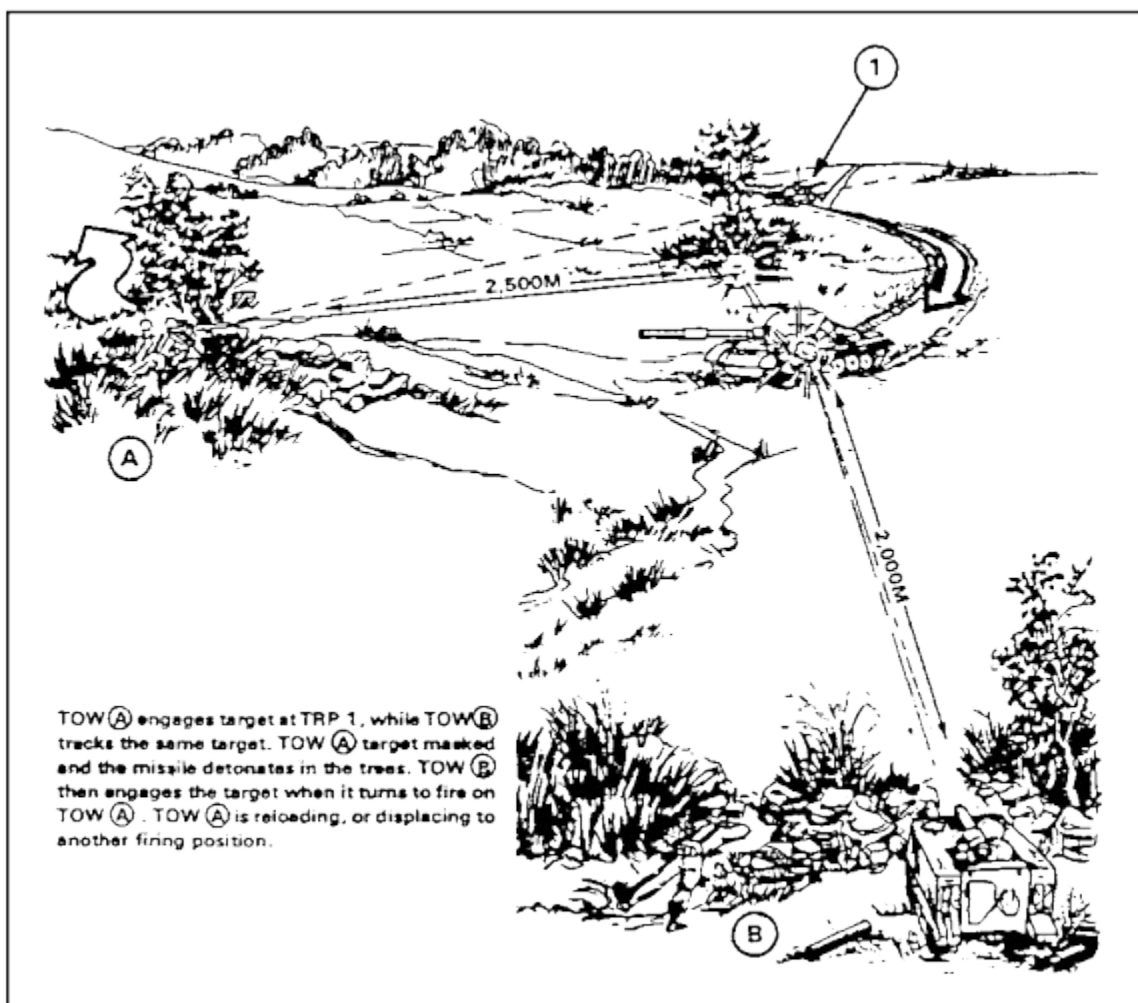
- a. Infantry Assets. Infantry is needed to provide local security, to emplace obstacles (wire and mines), and to engage dismounted infantry and armor.
- b. Engineer Assets. Engineer assets help shape the engagement area by emplacing obstacles that slow, canalize, restrict, or divert the enemy's movement. Obstacles increase the enemy's time in the kill zone and force him to present his flank as he maneuvers around an obstacle.
- c. Indirect Fire Assets. Indirect fires (artillery and mortars) are used for several purposes. They slow the enemy rate of advance, break up formations, cause vehicles to button up, and suppress accompanying artillery and antitank guided missiles. Also, they are used to help conceal the movement of TOW squads between positions. Anti-armor platoon leaders can request indirect fires by contacting either the battalion mortar platoon or the DS artillery battalion. Frequencies, call signs, and priorities of fire must be coordinated.

## 10. Employment Guidelines.

When employing TOWs, use the following guidelines.

a. Provide Mutual Support. Mutual support is the help that weapons/units give to each other to fully use their capabilities and to offset their limitations.

(1) Use TOWs in Pairs (By Section). To be sure that a sector of fire has continuous anti-armor coverage, use TOWs in pairs with overlapping sectors of fire. Used that way, they can support each other. One system can fire while the other is reloading or moving to an alternate position. Use TOWs separately only when that is the only way to cover the armor approaches or to overwatch the attacking company's zone, as shown in [Figure 2-12](#).

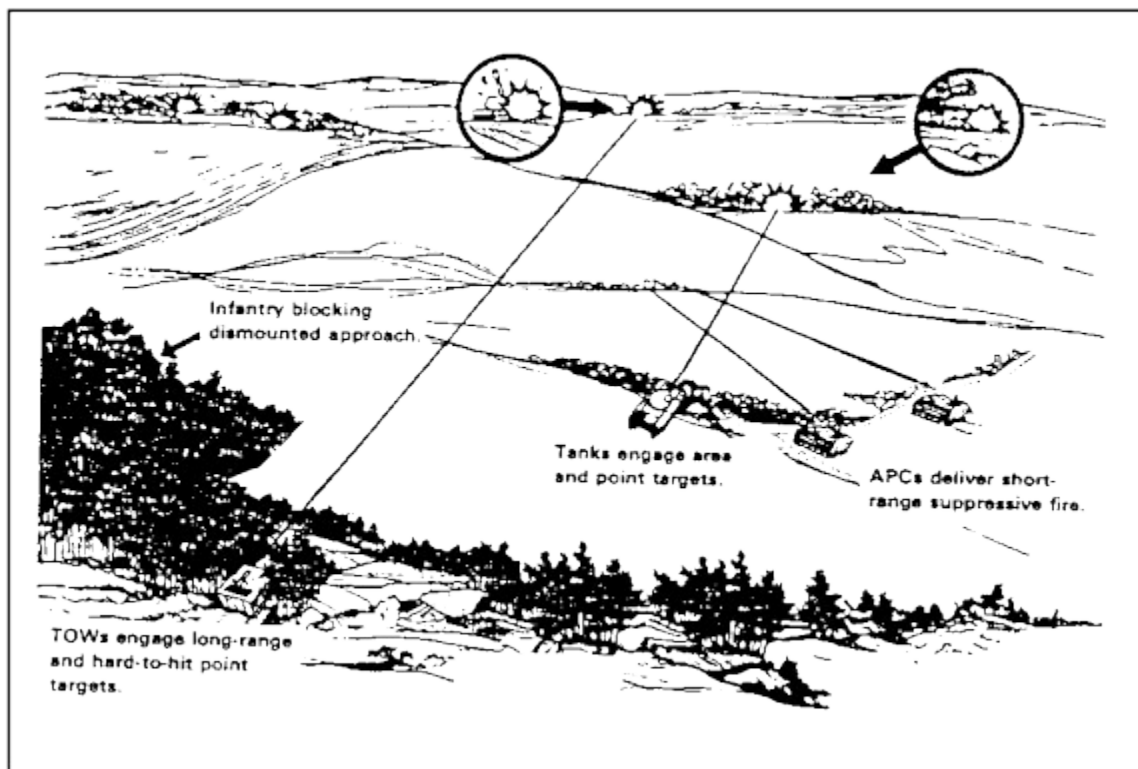


**Figure 2-12. TOWs in Pairs.**

(2) Combine TOW Fires with Fires of Other Anti-armor Weapons. Position TOWs and other weapons so that they can support each other. Position TOWs and tanks so as to provide long-range coverage along high-speed armor approaches to ensure continuous anti-armor fires. Position Dragons and Light Antitank Weapons (LAWs) along the anti-

armor approaches with more restrictive fields of fire. Use TOWs to engage the long-range targets and to add depth to the defense.

(3) Integrate TOWs with Nearby Infantry for Security. TOW crews by themselves are vulnerable to attacks by mounted and dismounted infantry. To provide security against such attacks, TOWs should be positioned so as to take advantage of infantry blocking dismounted and concealed mounted approaches leading to TOW positions, as shown in [Figure 2-13](#).



**Figure 2-13. Integrate TOWs with Nearby Infantry.**

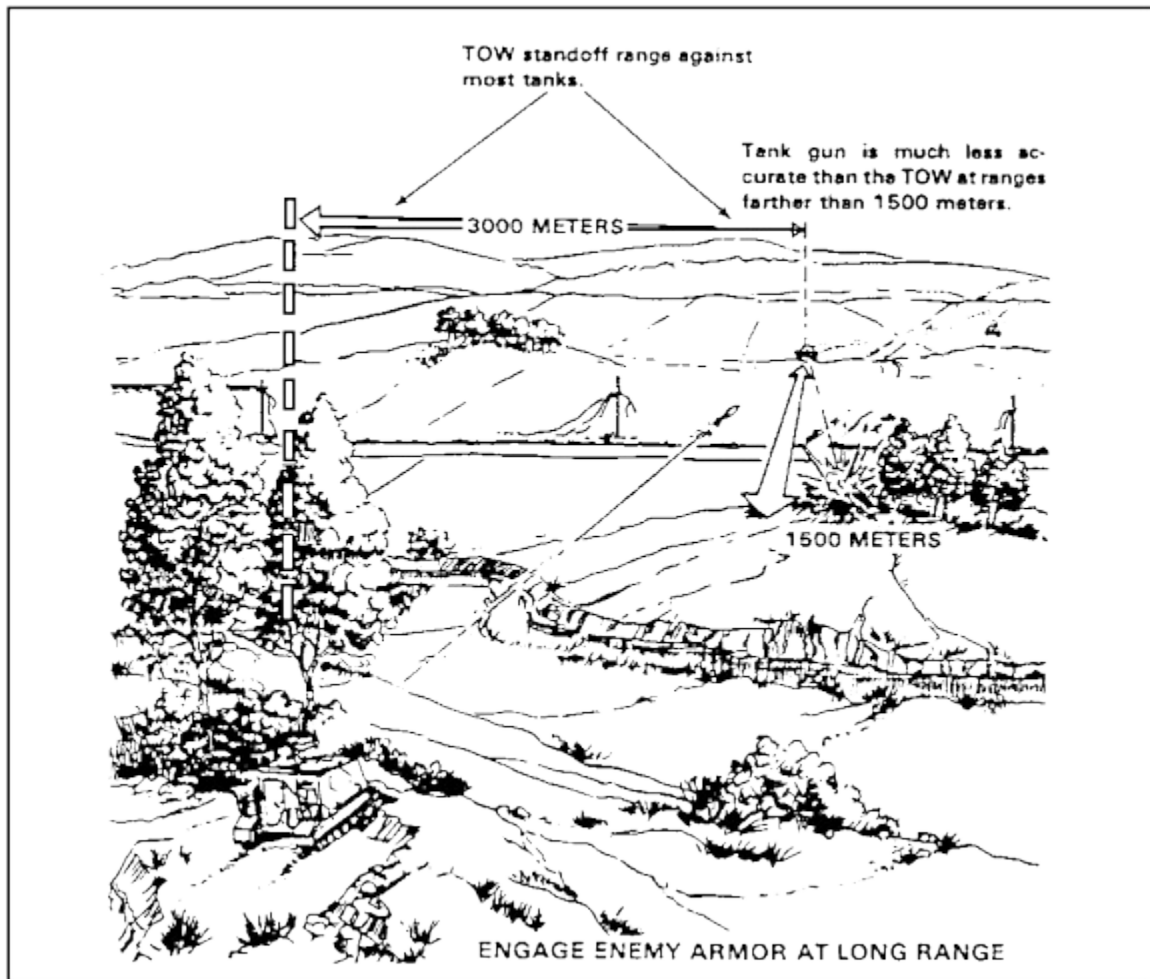
b. Exploit TOW Range ([Figure 2-14](#)). The greatest advantage of the TOW is its accuracy over most tanks at ranges beyond 1,500 meters. The major limitation is that the TOW crew (M113 or M151) is exposed to enemy suppressive fires while firing. Therefore, the principal factors to consider when positioning the TOW for employment are twofold.

(1) Exploit the capabilities of the weapon.

(2) Protect the crew from countermeasures such as artillery and tank fire.

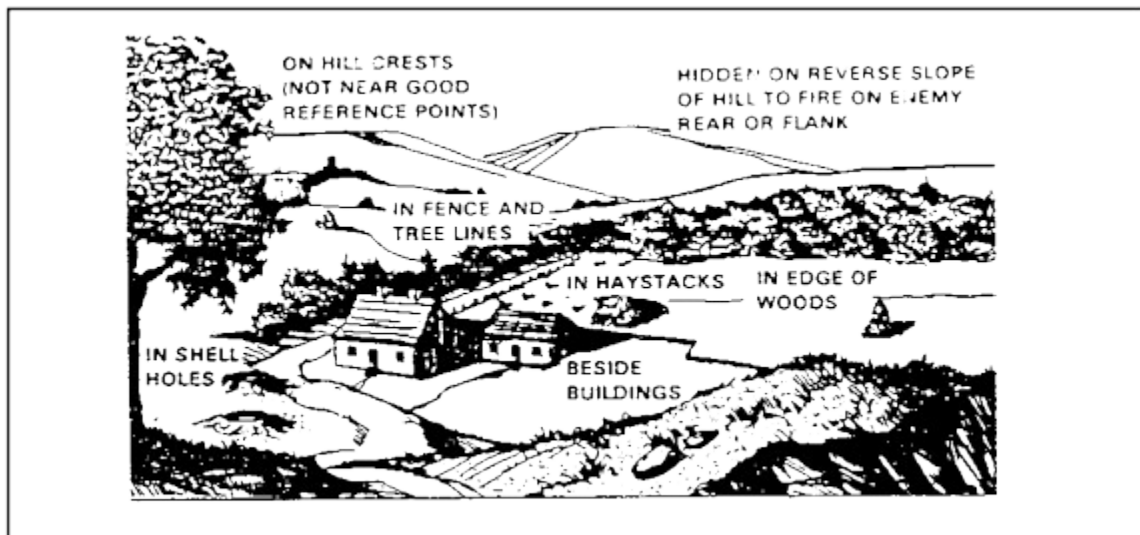
c. Avoid Conspicuous Terrain Features. Use terrain to your best advantage. Every piece of terrain has features that can enhance or degrade mission accomplishment with the TOW. Conspicuous terrain features, such as road junctions, hilltops, and lone buildings or trees, attract the enemy's attention, and he may have registered on them. As a leader, you must recognize terrain features that will serve the chances of success with the TOW and lessen its vulnerability to detection. [Figure 2-15](#) shows examples of how to avoid conspicuous terrain features such as hill crests. For example, the TOW can be hidden on reverse slopes of hills to fire on the enemy's

rear or flanks. The TOW can be hidden in fence and tree lines, in haystacks, in the edges of woods, in shell holes, or beside buildings.

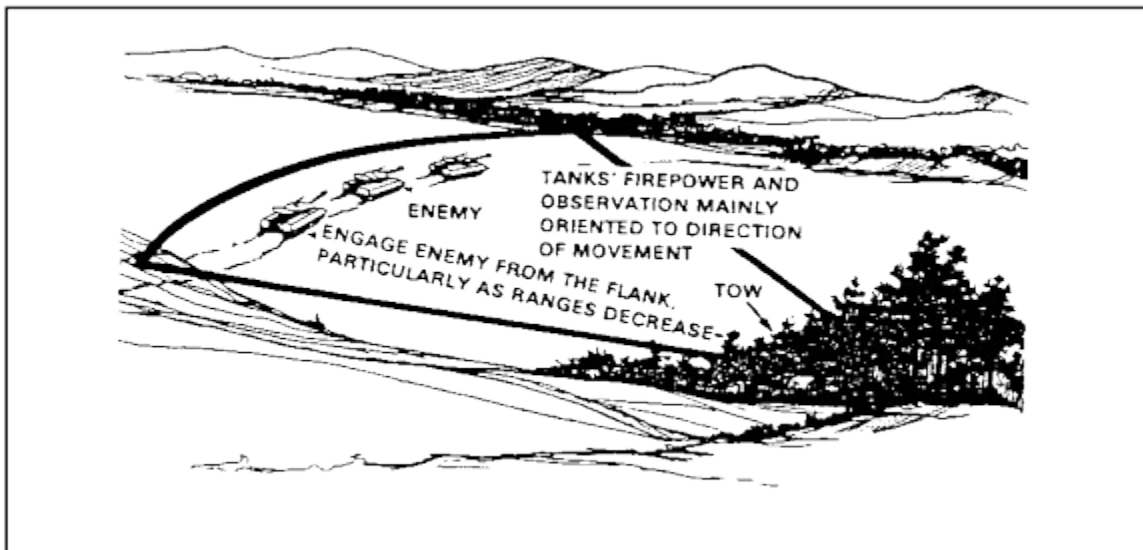


**Figure 2-14. Exploit TOW Range.**

d. Provide for Flank Engagements. TOW frontal fire against tanks must be avoided, as a rule. The crew of a launcher so sited is extremely vulnerable, particularly at shorter ranges. When enemy tanks are advancing, their firepower and observation are oriented toward the front. It is difficult for them to detect and trace a missile launched from a flank, as indicated in [Figure 2-16](#).



**Figure 2-15. Avoid Conspicuous Terrain Features.**

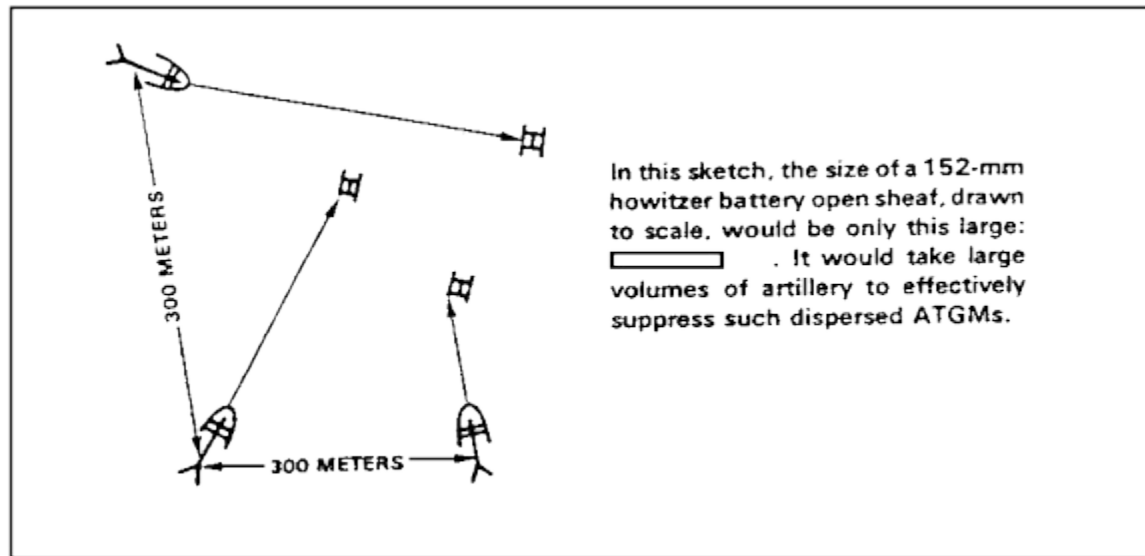


**Figure 2-16. Provide for Flank Management.**

However, a trailing enemy tank may see the launch signature or crew movement and destroy the weapon or stalk it from the rear. In addition to firing from the flank, site the weapon so that it is in defilade from the direction of the enemy. (This means that there must be something between the weapon and the tanks that are not being fired at—a parapet, a wall or natural cover. Flank concealment is necessary but flank defilade, giving cover from fire, is preferred. The concealment of flash is also essential, not only from the following tanks but from the enemy's observation post as well. A weapon seen is a weapon lost.

e. Provide Dispersion. If the section leader can control the fires of both squads, TOW squads should be separated a minimum of 300 meters (either laterally or in depth), as shown in [Figure 2-17](#), so that no two squads can be suppressed at the same time by the fires of a single volley of

artillery from one battery. This separation depends upon terrain and the section leader's capability to control the fire and the movement of the squads.



**Figure 2-17. Provide Dispersion.**

## **PART C - CONSOLIDATE AND REORGANIZE A TOW SECTION FOLLOWING ENEMY CONTACT**

### **1. Consolidate and Reorganize (Offense).**

Include your plan to consolidate and reorganize the objective in your attack order to your squad leaders. The plan may be changed as the situation requires, but it must be complete and detailed.

a. Consolidation. Consolidation is the organizing and strengthening of a newly captured position. The aim is to secure the position against a counterattack. The plan for consolidation includes a sector of fire for the TOW section.

(1) Hasty Defense. Upon the seizure of the objective, set up a hasty defense to meet a counterattack. You must observe along enemy approaches.

(2) Request General Location and Sector of Fire. Request from the commander the general location and the sector of fire of your section.

(3) Correct Fire Planning and Coordination. Correct your fire planning and coordination.

b. Reorganization. Reorganization is the restoration of order in your section and the actions needed to prepare your section for further combat.

(1) Reestablish the Chain of Command. Ensure that all key positions are filled and that all members know the new chain of command.

(2) Evacuate Casualties. Evacuate casualties and request replacements.

(3) Redistribute Ammunition. Redistribute ammunition within the section.

- (4) Resupply Ammunition. Pick up ammunition at a predesignated point, if coordinated, or take a quick inventory and request resupply through channels.
- (5) Man and Position TOWs. Ensure that TOWs are manned and positioned to cover their assigned sectors of fire.
- (6) Give Situation Report. Give your commander a situation report that includes the tactical situation, personnel strength, and ammunition-vehicle-weapon status.
- (7) Plan Maintenance. Plan for maintenance on TOWs and vehicles, where applicable, if the tactical situation allows it.

## 2. Reorganize (Defense).

When an enemy assault is repelled, you must immediately prepare your section to meet a renewed assault. To accomplish this task, you must follow many of the same procedures used for the reorganization after an offensive action:

- a. Reestablish the chain of command.
- b. Redistribute and resupply ammunition.
- c. Request instructions for the location and the sector of fire of the TOW section.
- d. Reestablish communication. Check wire to ensure that it was not cut during the attack.
- e. Evacuate and request replacements for casualties.
- f. Restore camouflage and improve positions. Do not overcamouflage a position. If it was not found during the first assault, it may not be found during the next try.
- g. Resupply after inventory is taken and submit requests for all needed supplies.

## **PART D - RECOVER A TRACKED VEHICLE USING FIELD EXPEDIENTS**

### 1. Methods of Recovery.

There are four methods of vehicle recovery using organizational personnel and equipment.

- a. Winching. Winching uses winches on special-purpose or cargo vehicles.
- b. Towing. Towing uses the towing capabilities of similar special-purpose vehicles. This is the quickest recovery method.
- c. Lifting. Lifting uses special-purpose vehicles.
- d. Expedients. Expedients are used when other methods are not adaptable to the situation or when recovery vehicles and equipment are not readily available.



## 2. Recovery Procedures.

During any recovery operation, a proven procedure should be used to ensure quick and safe recovery. A haphazard or trial-and-error approach to a recovery problem can only result in the prolonged immobility of the disabled vehicle, the loss of valuable time, damage to the equipment, and possible injury to personnel. The following eight-step recovery procedure should be used in every recovery involving winching.

RECONNOITER AREA

ESTIMATE SITUATION

CALCULATE RATIO

OBTAIN RESISTANCE

VERIFY SOLUTION

ERECT RIGGING

RECHECK RIGGING

YOU ARE READY

## 3. Equipment and Support for Recovery.

The unit drivers and crews should attempt recovery before calling on support from a higher level. Recovery support should be called upon only when similar vehicles are not adaptable to the situation or when the tactical situation does not permit their use. **ENGAGED COMBAT VEHICLES SHOULD NEVER BE DIVERTED FOR RECOVERY.**

## 4. Use of Similar Vehicles for Recovery.

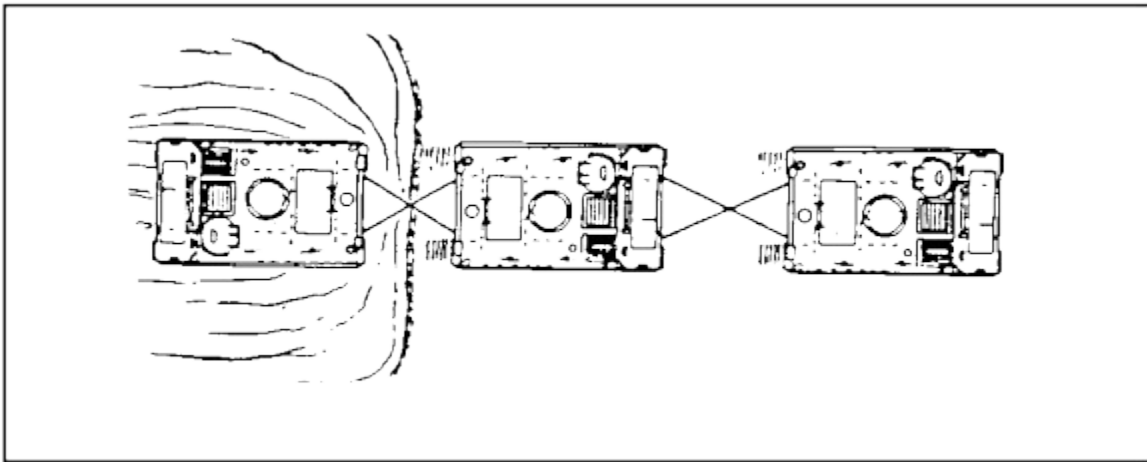
The use of similar vehicles for recovery is usually the quickest method because similar vehicles are most likely to be readily available. The number of tracked vehicles required for a specific recovery depends on the resistance to be overcome, the type of disablement, and the condition of the terrain on which the towing vehicles must be operated. The rigging is accomplished by using the vehicle tow cables attached to the tow hooks of the vehicles.

a. Use of Tow Cables. When the tow cables are used between two vehicles, the cables should be crossed. This prevents them from entangling in the tracks on the turns and maintains the alignment of the vehicles, as shown in [Figure 2-18](#). If a greater working distance between the pulling vehicle and a mired vehicle is required, two cables can be joined together by using tow hooks.

b. Recovering a Mired Vehicle. To recover a mired vehicle, use the following procedure.

- Position the towing vehicle and shut off its engine.
- Attach the tow cables to the tow hooks at the rear of the towing vehicle.
- Attach the tow cables to the tow hooks of the mired vehicle.





**Figure 2-18. Towing a Mired Armored Personnel Carrier (APC) Using Two Similar Vehicles.**

**CAUTION:** ENSURE THAT ALL SAEETY KEYS ARE INSTALLED IN THE TOW HOOK PINS.

- Start the engine of the towing vehicle.
- Shift the towing vehicle's transmission into 1 range and slowly take up the slack in the cables.
- Stop the towing vehicle.
  - Shift the transmission into neutral.
  - Lock the brakes.
  - Shut off the engine.
- Recheck the rigging.
- Start the engine of the towing vehicle.
  - Shift the transmission to 1 range.
  - Release the brakes.
- Instruct the driver of the mired vehicle to prepare his vehicle for movement.
  - Start the engine.
  - Shift the transmission to 1-2 range.
  - Release the brake.
- Slowly apply power and move forward.

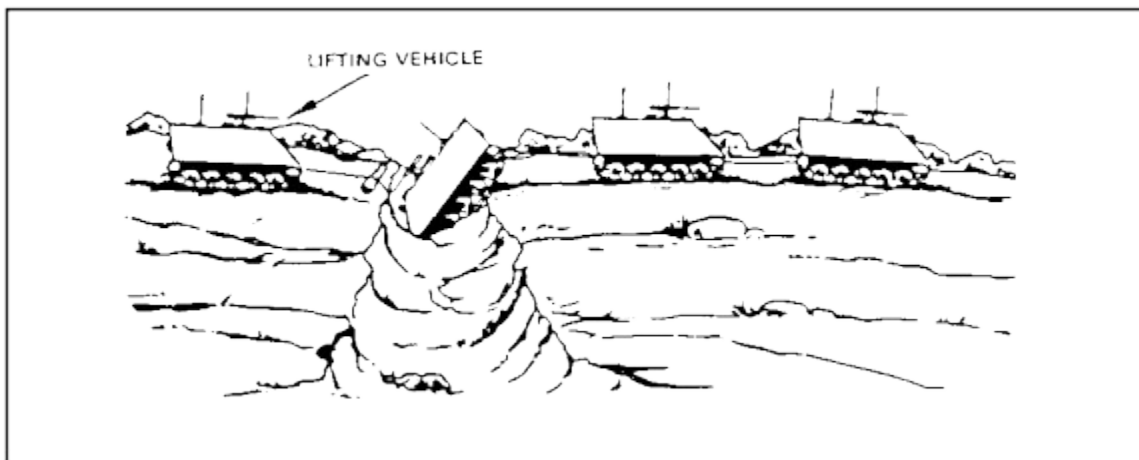
**NOTE:** The driver of the mired vehicle must apply power to assist in the recovery.

- Tow the mired vehicle until both vehicles are on a hard surface.

- Instruct the driver of the towed vehicle to slowly move forward to provide slack in the towing cable.
- Stop the recovered vehicle.
- Place the transmission of both vehicles in neutral, lock the brakes, and shut off the engines.
- Disassemble and stow the rigging.

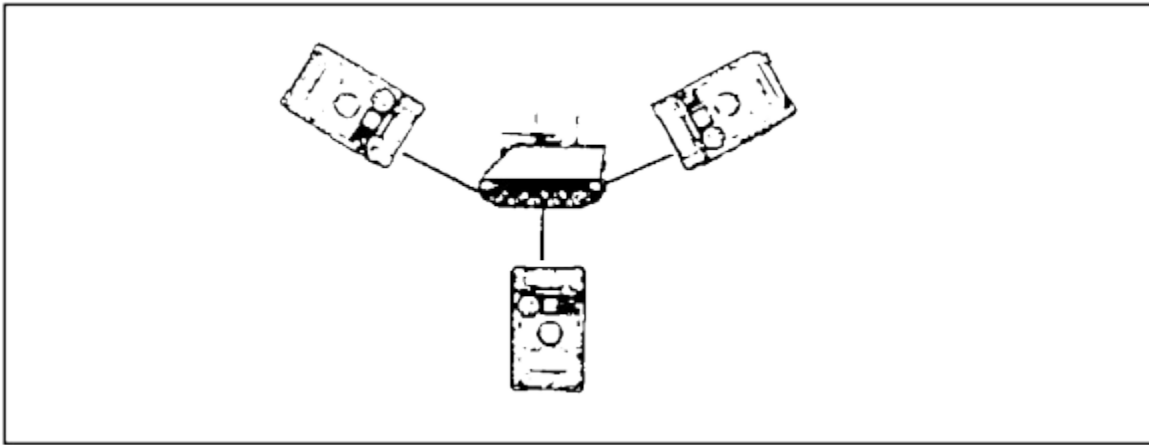
NOTE: If two towing vehicles are required for an operation, only one tow cable is needed between the towing vehicles because the strength of one tow vehicle is slightly greater than the pulling effort of the second towing vehicle. However, when two tow cables are available, they should be used to maintain alignment and to equalize the pulling effort.

c. Recovering a Nosed Tracked Vehicle. The recovery of a nosed tracked vehicle (shown in [Figure 2-19](#)) may require as many as three similar vehicles, depending on the degree to which it is nosed and the condition of the terrain on which the pulling vehicle must operate. In extreme situations, it may be necessary to lift the front of the nosed vehicle. To use a lifting vehicle, two or more cables are connected together to obtain a greater working distance between the nosed vehicle and the lifting vehicle. The lifting vehicle is positioned facing the nosed vehicle. The cables of the pulling vehicle are connected as for the recovery of a mired vehicle. Power is applied to all the assisting vehicles at the same time until the front end of the nosed vehicle is raised and starts moving rearward. Then the lifting vehicle moves forward slowly, supporting the vehicle until it is recovered. If there has been any spillage of oil or fuel in the nosed vehicle, its engine should not be operated until the spillage has been cleaned up.



**Figure 2-19. Recovering a Nosed Armored Personnel Carrier (APC) with Similar Vehicles.**

d. Recovering an Overturned Tracked Vehicle. An overturned tracked vehicle can be uprighted by using three similar vehicles, as shown in [Figure 2-20](#).



**Figure 2-20. Recovering an Overturned Armored Personnel Carrier with Similar Vehicles.**

- (1) Pulling Vehicle. One vehicle is used to pull the overturned vehicle upright.
- (2) Holding Vehicles. The other two vehicles are used to hold the overturned vehicle and to retard its fall to prevent its crashing down on the suspension system.
- (3) Connecting the Cables. Two cables are connected in pairs to allow a safe working distance. The cable used to upright the overturned vehicle is connected to the nearest center roadwheel arm support housing on the high side of the overturned vehicle. Never connect it to any other part of the suspension system, turret, or tiedown eyes.
- (4) Positioning the Holding Vehicles. The two vehicles used for holding are positioned at a 30- to 45-degree angle from the overturned tank with their cables connected to the two hooks on the high side of the overturned vehicle. The holding vehicles are positioned so as to prevent damage to the cables or the fenders and the lights of the overturned vehicle as it is uprighted.
- (5) Uprighting the Overturned Vehicle. The drivers of the holding vehicles shift to low range. The pulling vehicle applies power gradually in reverse, while the holding vehicles move forward only enough to keep their cables taut until the overturned vehicle passes through the point of balance. As the overturned vehicle passes through the balance point, the holding vehicles move forward slowly, supporting the overturned vehicle and lowering it onto its suspension system.

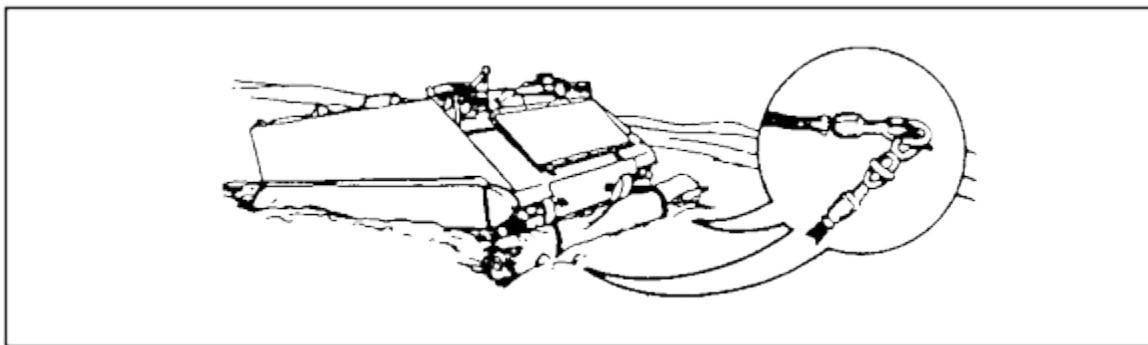
**WARNING:** Because of spilled oil and fuel that will normally be present, smoking or open flames near the overturned vehicle must be prohibited.

##### 5. Recovery Expedients.

Military operations require vehicles to operate in remote areas where, should disablement occur, assistance is not readily available. Under these conditions, the driver or the crew must attempt self-recovery by the use of expedients. An expedient is an improvised method using materials on hand.

a. Anchoring Tracks. Vehicles often become bellied (high-centered) on stumps, rocks, and dry ridges or in mire. In such cases, vehicles are immobilized because of a lack of traction.

(1) Recovering a Vehicle Bellied in Mire. To recover a vehicle bellied in mire (as shown in [Figure 2-21](#)), obtain a log that is long enough to span the width of the vehicle and thick enough to support the vehicle's weight. The log is placed against both tracks, and a tow cable is placed so that one end of the cable goes over the log and through the tracks from inside. The other end of the tow cable is placed underneath the log, and the ends of the cable are connected with a tow hook on the outside of the track to facilitate disconnecting. The same procedure is followed to attach the log to the track on the opposite side of the vehicle. By gradually applying power to the tracks, the slack in the tow cables will be taken up, pulling the log underneath the tracks until it comes into contact with the obstacle, anchoring the tracks and causing the vehicle to move.



**Figure 2-21. Recovering a Vehicle Bellied in Mire.**

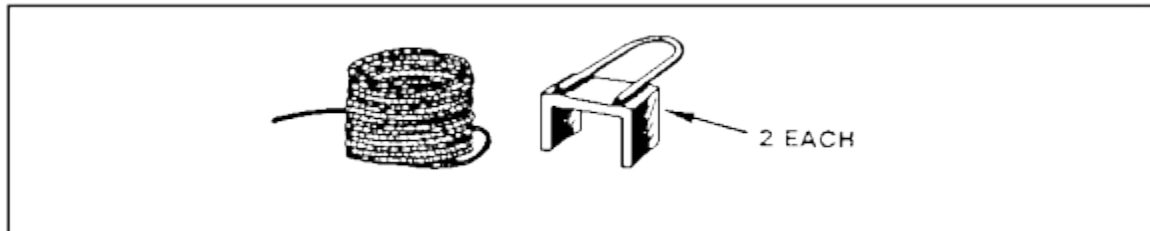
(2) Self-Recovering a Vehicle Bellied in Mire. To self-recover a vehicle bellied in mire, first erect the rigging. Do so by placing a log against both tracks, positioning the tow cables (both tracks) and connecting the ends of the cables using tow hooks (both tracks). Then, recover the tracked vehicle by starting the engine, releasing the brakes, shifting the transmission selector lever to the desired position, and gradually applying power to the tracks. To stop the vehicle, shift the transmission selector lever to the neutral or the park position, lock the brakes, and shut off the engine. Then, disassemble and stow the rigging.

**CAUTION:** CARE MUST BE TAKEN TO STOP THE VEHICLE BEFORE THE LOG REACHES THE FENDERS TO PREVENT DAMAGE TO THE FENDERS AND TOW CABLES.

(3) Recovering a Vehicle Bellied in Other than Mire. For a bellied disablement other than mire, the tracks can be anchored using two tow cables. Connect the tow cables together with a tow hook and attach the cables to both tracks by passing the ends of the cables through the tracks from the outside and attaching them to the standing parts of the cables with two hooks. When power is applied to the tracks, the cables will contact the obstacle and anchor the tracks.

b. APCAT Device. Armored personnel carriers (APCs) may fail to exit the water after swimming due to steep banks or adverse terrain conditions. As an aid to water exit, the APCAT

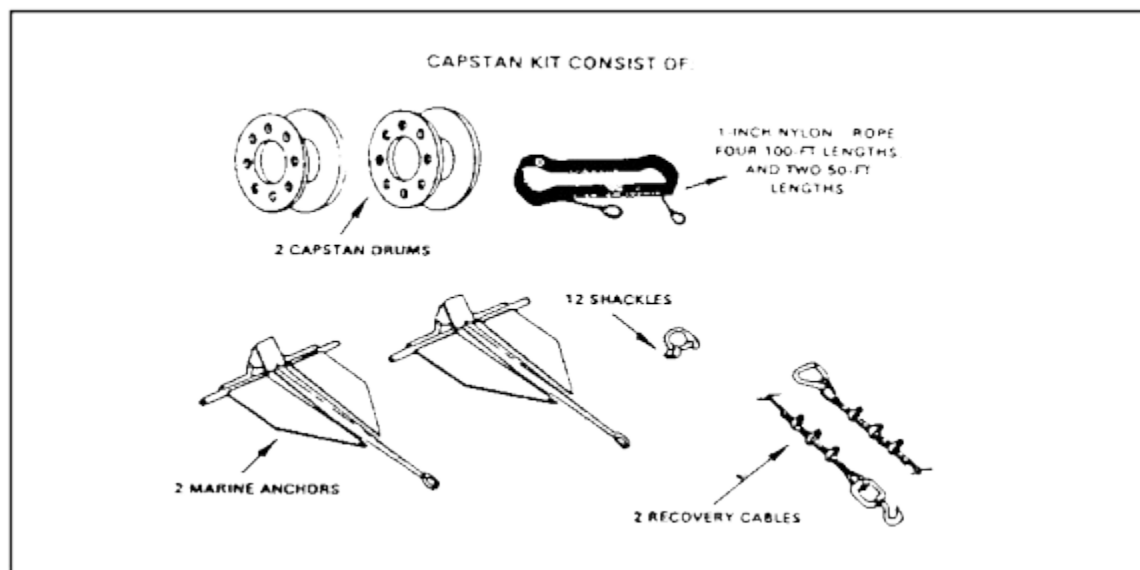
expedient can be used. The APCAT expedient kit consists of one pair of track anchor blocks (fabricated locally) and 200 feet of one-inch fiber rope (shown in [Figure 2-22](#)). The track anchor blocks are placed in the vehicle track sprocket holes in each track, and the rope is then attached from the blocks to suitable anchorage. As power is gradually applied, the tracks will anchor themselves to the blocks and cause the vehicle to move. This expedient may also be used in mired or bellied situations.



**Figure 2-22. APCAT Expedient Kit.**

c. Capstan Kit. When leaving water after swimming operations, an APC may become disabled because of the steep angle of the bank, the muddy or slippery surface of the bank, or a combination of both, and be unable to exit. A capstan expedient can be used for a self-recovery. The capstan kit (shown in [Figure 2-23](#)) consists of one pair of capstan adapters that bolt onto the drive sprocket hub, one pair of capstan drums with mounting tee bolts, nylon rope, and one pair of ground anchors. Normally, the capstan adapters are permanently mounted to the drive sprocket hubs with the metal shroud plates cut away. The capstan drums can be very quickly installed to the adapters with the drum tee bolts. The rope is secured to each mounted capstan drum and wrapped two or three turns around the drums on both sides of the vehicle. Care must be taken to ensure that the anchors are positioned in line with the capstan drums. The ropes must extend from the underside of the capstan drum before they are tied to their respective anchors. By applying power to the tracks, the ground anchors will embed in the ground, and the winching action of the capstan drums will cause the vehicle to move. To recover a tracked vehicle using the capstan kit, follow these steps:

- Lock the brakes and the steering levers.
- Stop the engine.
- Remove the capstan kit from the stowed position.
- Remove mud and debris from around the sprocket wheels.



**Figure 2-23. Capstan Kit.**

- Attach the drum assemblies to the sprocket wheels.
- Position the anchors at the desired location.
- Connect ropes to the anchors.
- Attach anchor recovery cables to the anchors.
- Attach ropes to the drums and take up the slack.

**NOTE:** The ropes must be pulled tight and kept away from the drum to prevent them from winding into the drum or catching in the track.

- Start the engine.
- Release the brakes and the steering levers.
- Position the range selector in 1 range.
- Apply power slowly until the anchors are embedded and the carrier starts a forward motion.
- Continue the forward motion until the carrier is free of obstacles.
- Stop the carrier.
  - Lock the brakes and the steering levers.
  - Position the range selector in neutral.
  - Stop the engine.
- Disassemble the capstan kit.
- Recover the anchors.

- Stow the capstan kit in the travel position.

NOTE:           The capstan kit may be ordered through your maintenance shop.

## Lesson 2

### Practice Exercise

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Situation: Your company commander believes that enemy contact is probable. Use this situation to answer questions 1 through 4.

1. In the movement technique that the company employs, your anti-armor platoon's role is to be one of
  - ☐ A. reconnaissance.
  - ☐ B. supply.
  - ☐ C. overwatch.
  - ☐ D. assault.
2. Later, enemy contact is expected, and the company commander orders a change in movement techniques so that he is leading with a single platoon while the remainder of the company overwatches. You orient your TOW platoon on
  - ☐ A. suspected enemy locations and avenues of approach.
  - ☐ B. the bounding element.
  - ☐ C. likely or suspected enemy locations at closer ranges.
  - ☐ D. preplanned and designated targets.
3. In establishing the overwatch, one of the important considerations that you observe regarding the role of the TOW launcher system is that it
  - ☐ A. is a suppressive weapon.
  - ☐ B. is a volume fire weapon.
  - ☐ C. has a high trajectory.
  - ☐ D. provides long-range, accurate fire on point targets.
4. Your platoon must move to the rear. You instruct the platoon to do so in which of the following ways?
  - ☐ A. Each squad moves rearward, one after another, in a single file.
  - ☐ B. Each section moves rearward by squads within the sections.
  - ☐ C. Each section moves rearward by section.
  - ☐ D. Each section moves rearward together as a single platoon-size unit.



Situation: Your TOW section is practicing terrain driving. Use this situation to answer question 5.

5. You see a driver driving his vehicle along the ridge of a hill. You remind the driver NOT to
- ☐ A. skyline.
  - ☐ B. silhouette.
  - ☐ C. outline.
  - ☐ D. advertise.

Situation: Your TOW squad is engaging enemy tanks. Use this situation to answer question 6.

6. You have your gunner engage targets from the flank rather than from the front because a tank is less likely to be killed when engaged from the front and more likely to
- ☐ A. detect and suppress your TOW.
  - ☐ B. retreat successfully.
  - ☐ C. reroute its approach toward your firing position.
  - ☐ D. outmaneuver your TOW vehicle.

Situation: Your TOW squad is seeking suitable terrain in which to establish a firing position. Use this situation to answer question 7.

7. Which of the following firing terrain features do you use as a place in which to establish your firing position?
- ☐ A. Road junctions.
  - ☐ B. Lone buildings or trees.
  - ☐ C. Hilltops.
  - ☐ D. Edges of woods.

Situation: You are recovering a nosed tracked vehicle. Use this situation to answer question 8.

8. How many similar vehicles may you require to recover a nosed tracked vehicle?
- ☐ A. Two.
  - ☐ B. Three.
  - ☐ C. Four.
  - ☐ D. Five.

# Practice Exercise

## Answer Key and Feedback

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Situation: Your company commander believes that enemy contact is probable. Use this situation to answer questions 1 through 4.

1. In the movement technique that the company employs, your anti-armor platoon's role is to be one of
  - A. reconnaissance.
  - B. supply.
  - C. overwatch.
  - D. assault.
2. Later, enemy contact is expected, and the company commander orders a change in movement techniques so that he is leading with a single platoon while the remainder of the company overwatches. You orient your TOW platoon on
  - A. suspected enemy locations and avenues of approach.
  - B. the bounding element.
  - C. likely or suspected enemy locations at closer ranges.
  - D. preplanned and designated targets.
3. In establishing the overwatch, one of the important considerations that you observe regarding the role of the TOW launcher system is that it
  - A. is a suppressive weapon.
  - B. is a volume fire weapon.
  - C. has a high trajectory.
  - D. provides long-range, accurate fire on point targets.
4. Your platoon must move to the rear. You instruct the platoon to do so in which of the following ways?
  - A. Each squad moves rearward, one after another, in a single file.
  - B. Each section moves rearward by squads within the sections.
  - C. Each section moves rearward by section.
  - D. Each section moves rearward together as a single platoon-size unit.

Situation: Your TOW section is practicing terrain driving. Use this situation to answer question 5.

5. You see a driver driving his vehicle along the ridge of a hill. You remind the driver NOT to

- [A. skyline.](#)
- B. silhouette.
- C. outline.
- D. advertise.

Situation: Your TOW squad is engaging enemy tanks. Use this situation to answer question 6.

6. You have your gunner engage targets from the flank rather than from the front because a tank is less likely to be killed when engaged from the front and more likely to

- [A. detect and suppress your TOW.](#)
- B. retreat successfully.
- C. reroute its approach toward your firing position.
- D. outmaneuver your TOW vehicle.

Situation: Your TOW squad is seeking suitable terrain in which to establish a firing position. Use this situation to answer question 7.

7. Which of the following firing terrain features do you use as a place in which to establish your firing position?

- A. Road junctions.
- B. Lone buildings or trees.
- C. Hilltops.
- [D. Edges of woods.](#)

Situation: You are recovering a nosed tracked vehicle. Use this situation to answer question 8.

8. How many similar vehicles may you require to recover a nosed tracked vehicle?

- A. Two.
  - [B. Three.](#)
  - C. Four.
  - D. Five.
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